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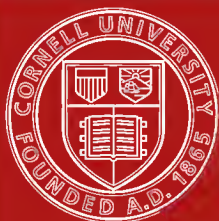
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Conservation of School Children

Being the Papers and Discussions of a Conference
at Lehigh University, April 3 and 4, 1912

Under the Auspices of the American Academy of Medicine

together with

Several papers (not presented to the Conference) prepared
for this Volume

Reprinted from the Bulletin of the American Academy of Medicine

EASTON, PA.
PRINTED FOR THE AMERICAN ACADEMY OF MEDICINE.
1912.

FOREWORD.

The Conference on the Conservation of School Children under the auspices of the American Academy of Medicine was held at Lehigh University, South Bethlehem, on April 3 and 4, 1912. The sessions of the Conference were held in Drown Memorial Hall, which was kindly placed at the disposal of the Conference by the University authorities.

At the first session (Wednesday, April 3rd, 2 P.M.) the President of the Academy, Dr. Alexander R. Craig, of Chicago, in calling the meeting to order, said:

This Conference is called to discuss a subject that interests the public. We are grateful for your attendance and we want you to feel that this is not a meeting of the American Academy of Medicine but a conference of all interested in the subject. The discussions are open to any who have thoughts to add to those presented in the papers read, questions to ask or comments to make on the subject presented; you are welcome to the floor of the conference whenever you will contribute to its discussions.

The Secretary of the Academy then presented the program for the Conference and explained the registration system, making a distinction between the members of the Conference and visitors, a registration fee of two dollars being charged to the former which entitled them to a badge and a copy of the transactions of the Conference. He also called attention to the invitation of the President of Lehigh University for the Conference to make use of the University Commons, thus enabling the social opportunities of the meeting to be increased.

The President introduced Henry S. Drinker, LL.D., President of Lehigh University, who said:

Mr. President, Ladies and Gentlemen of the Academy, our Guests:

The University is highly honored to be allowed to be the host of this distinguished body and you are very welcome. We hope we shall be able to make you comfortable. It will certainly be our object and pleasure to do whatever we can to minister to your wants and show you how welcome you are.

Some of you have come from a distance—one gentleman from Minnesota—and may wish to know something about this institution. Lehigh is peculiarly a Pennsylvania institution. It was founded by a Pennsylvanian who did much to develop our transportation, our industrial and our mining interests—Asa Packer. It was founded by him to make some return to the State of Pennsylvania for what Pennsylvania gave him. He did a good work, in starting this University, for the Lehigh Valley, for our state, and for the country at large. The conditions have been markedly changed since its founding. As you go over to the town you will probably notice a small brick building facing on the street that runs east and west to the north side of the campus. That was the original Lehigh University. At the time it was built it was a Moravian Church. Judge Packer bought it and provided another site for the church. Lehigh has naturally developed since those days, but what is significant to us who have graduated from this institution is that Judge Packer in 1866 is said to have made the largest donation to public education up to that time. He gave more than two million during his life and at his death, and no doubt set the pace for the many gifts that have come since this to the cause of education in America. So he not only founded this institution but he pioneered those who followed him in the generous promotion of education in our country.

Lehigh has made her main reputation on the technical side. Naturally she should, being located here at a railroad center and near the anthracite mining region—and at the time she was founded—in the middle of iron and zinc interests, some of which have since died down. A location peculiarly favorable for the development of technical work, but I ask you gentlemen of the medical profession to remember that Lehigh too has had at heart what you and I know, that the foundation of a thorough technical training should be a broad culture.

If you have time to go over our grounds I beg you to give us the benefit of your inspection of our buildings and courses. You are here in vacation time, so you will have a free foot. You should understand that this building is the Academy's during the time of your stay. The ladies will find comfortable resting rooms in the Y. M. C. A. quarters. Drown Hall is our Students' Club House, started by our Alumni with the help of friends of the institution, so that our students might have their own place. It is run and managed by the student body under the system at Lehigh of student management of everything possible to turn over to them. We have a student organization managing the honor system in the University and which is also charged with all matters affecting the good name and fame of the institution and I think they bear their responsibility well.

To-night I believe the University is peculiarly charged with your care, and it struck us that (as is often done in meetings of this kind) it would be well to have one of our meetings devoted to social intercourse. Therefore after Dr. Lovejoy's address this evening we shall have a social gathering

and try to show you how very, very welcome you are, and how delighted Lehigh is to have you here.

Dr. Craig, as President of the American Academy of Medicine, responded to the address of welcome as follows:

It falls to my lot to make response to this very courteous and very warm welcome. Before doing this, however, I want to assure you again that the discussions of this Conference are not limited to members of the Academy of Medicine. This is a conference of those interested in the conservation of school children. While held under the auspices of the Academy, the members of that organization will have no privileges that are not accorded to all in attendance. The American Academy of Medicine realizes that these subjects are not strictly medical, they belong to the people. The physician is interested in them because he meets them in his work as he goes from house to house, as he visits this and that hospital, or other institution; as patients from their physical sufferings come to his door seeking relief. Constantly he feels the need of a new sociologic adjustment. He has tried to better conditions but he has found a wall opposing the efforts he has made to benefit society. His active interest in public health movements has been misunderstood; frequently when he has asked for legislation that a sociologic evil might be corrected, it has seemed that his interest has roused adverse sentiment and has caused the people to say: "This is a doctor's 'job;' we do not understand his interest, and will not stand for the restriction of personal liberty asked." Now we come to you trying to show you that the solution of these problems is not a doctor's "job," nor is it the doctor's "job;" but it is the duty, the high office of the citizens of the state. The citizen must defend the commonwealth by conserving not only its physical forces, but the forces of humanity in the community. With this as our purpose, we assemble, accepting the hospitality of a great university, to discuss themes of great interest to physicians because they are of value to the people. We thank Dr. Drinker and Lehigh University for the kind welcome given us and we are sure we are to have a delightful and profitable meeting.

The reading of papers was then entered upon and the following program carried out:

"Remediable Conditions in the Feeble-Minded and Backward" was presented by Walter Stewart Cornell, B.S., M.D., Philadelphia, Lecturer on Child Hygiene, University of Pennsylvania. The discussion upon this paper was opened by Maximilian P. E. Groszmann, Pd.D., Plainfield, N. J., Educational Director of the National Association for the Study and Education of Exceptional Children, and continued by Drs. Tuckerman and Carey, Dr. Cornell closing.

The second paper was presented by Joseph S. Neff, M.D., Philadelphia, Director of Public Health and Charities, on "How to Secure State Appropriations for the Proper Care of the Feeble-Minded." This paper was discussed by Drs. Groszmann and Neff.

"How Far Shall the Public School System Care for the Feeble-Minded?" was presented by Andrew W. Edson, New York, Associate City Superintendent of Schools of the City of New York; J. H. Van Sickle, Springfield, Mass., Superintendent of Schools; and E. Bosworth McCready, M.D., Pittsburgh, Medical Director, Hospital School for Backward Children. William G. Schauffler, A.B., M.D., Lakewood, N. J., President of the State Board of Education of New Jersey, opened the discussion on these papers; it was continued by Miss Johnson, of New York City, Dr. Button, of Rochester, N. Y., Dr. Groszmann, Dr. Zatae L. Straw, of Manchester, N. H., Dr. Bracken, of Minneapolis, Dr. Tuckerman, and closed by Mr. Edson. It was further discussed by Dr. Cornell and Dr. McCready closed.

After an enjoyable supper at the Commons, the Conference met at seven-thirty, under the presidency of Dr. Henry S. Drinker, President of Lehigh University. Dr. Henry H. Goddard, of the Vineland Training School, was unable to be present and his paper was read by title. The discussion upon it from the printed abstract in the program was opened by Dr. Alexander Marcy Jr., Riverton, N. J., and continued by Drs. Carey and Cornell.

The address of the evening was by Mr. Owen R. Lovejoy, of New York, the Secretary of the National Child Labor Committee, on "Child Labor *vs.* the Conservation of School Children."

The address was discussed by Mr. Nusbaum, Drs. Groszmann, Bracken, Cornell, Drinker and Baker, and Mr. Lovejoy.

At the conclusion of the discussion the Conference adjourned and was tendered a reception by Lehigh University, which was very much enjoyed.

The Conference reassembled on Thursday morning shortly after nine o'clock, with the Rev. Paul deSchweinitz, D.D., of Bethlehem, presiding. The general subject for the morning session

was "Teaching Hygiene" with several sub-topics. Under the sub-topic, "What Should be Taught?" Seneca Egbert, A.M., M.D., Philadelphia, Dean of the Medico Chirurgical College, spoke on "The Physician's Point of View;" while Percy Hughes, A.M., Ph.D., South Bethlehem, Professor of Philosophy and Education, Lehigh University, presented "The Teacher's Point of View." The discussion on these two papers was opened by F. D. Raub, Superintendent of Schools, Allentown, and continued by Drs. Groszmann, Putnam, Tuckerman and Weaver.

Under "How Should Hygiene be Taught?" W. S. Steele, A.M., LL.B., Harrisburg, Principal of the Harrisburg High School spoke of the "Methods in Vogue," and Louis Nusbaum, Philadelphia, District Superintendent Public Schools, read "Improvements Suggested." The discussion of these topics was opened by James S. Grim, Ph.D., Kutztown State Normal School, and continued by Miss Sara Phillips Thomas, Philadelphia, State Superintendent of Scientific Instruction, W. C. T. U.

Thomas D. Wood, M.D., Teachers College, Columbia University, and Helen C. Putnam, A.B., M.D., Providence, R. I., spoke on "Teaching Hygiene for Better Parentage."

"Indirect Methods of Teaching Hygiene" was presented by C. E. Ehinger, M.D., West Chester, Pa., Physical Director, State Normal School.

The Conference enjoyed another pleasant social hour in the Commons and met at two P.M. in the final session, with Mr. N. M. Emery, Vice-President of Lehigh University, in the chair. The general topic for the afternoon was "Medical Inspection." J. F. Edwards, M.D., Pittsburgh, Superintendent of Bureau of Infectious Diseases, spoke "From the Standpoint of the Board of Health;" Thomas A. Storey, M.D., Ph.D., New York, Professor and Director of Physical Instruction and Hygiene, College of the City of New York, "From the Standpoint of the Educator."

William Charles White, M.D., Pittsburgh, Professor of Medicine, University of Pittsburgh and Medical Director of Tuberculosis League, presented "Measures for Prevention of Respiratory Infection in the Schools." Watson L. Savage, A.B., M.D., Pittsburgh, President New York Normal School of Physical

Education and Student Health Supervisor Carnegie Technical Schools, opened the discussion, which was continued by Mrs. John L. Stewart, Mr. Emery, Miss Thomas, Drs. Kuntz, Burns, Button, Mrs. Stilwell, Drs. Egbert, Richards, Storey, Martin, Putnam, Cornell, Bracken, Jackson and closed by Dr. Storey.

Ira S. Wile, M.S., M.D., New York, read "The Relative Physical Advantages of School Lunches in Elementary and Secondary Schools," which was discussed by Drs. Button and Baker.

At the conclusion of the discussion, Dr. J. E. Tuckerman, of Cleveland, presented the following resolution, which was moved and adopted by a rising vote, the question being put by the Secretary, after which the Conference adjourned:

The American Academy of Medicine and the members of the Conference desire to express their sincere appreciation of the cordial hospitality and excellent arrangements provided by Lehigh University; to extend their hearty thanks to all whose endeavors and manifest interest have made the Conference a marked success—especially to those who have taken part in the program, to the students who have contributed so much to the physical comfort of all who have been privileged to enjoy the Commons; and also to the representatives of the press for their courtesies.

MEMBERS REGISTERED AT THE CONFERENCE.

ILLINOIS.	<i>Plainfield.</i>
Chicago.	Groszmann, M. P. E.
Craig, Alexander R.	<i>Riverton.</i>
MINNESOTA.	Marcy, Alexander, Jr., President of
St. Paul.	the New Jersey Society for the
Bracken, H. M., Sec. State Board of	Prevention of the Social Diseases.
Health.	NEW YORK.
NEW HAMPSHIRE.	<i>New York City.</i>
Manchester.	Edson, Andrew, Assoc. City Supt. of
Straw, Zatae L.	Schools.
NEW JERSEY.	Johnson, Eleanor H., Member of
Bayonne.	School Board.
Corwin, H. M., Medical Inspector.	Lovejoy, Owen R., Sec'y Child Labor
<i>Jersey City.</i>	Committee.
Brickerhoff, H. H., Medical Inspector.	Storey, Thomas A., Prof. of Hy-
Hulsizer, P. S., Principal of School.	giene, College of City of New York.
<i>Lakewood.</i>	Wile, Ira S.
Schauffler, W. G., Pres. State Board	Wood, Thomas D., Prof. of Hy-
of Education.	giene, Teachers College, Columbia
	Univ.

Rochester.

Button, L. L., Medical Examiner.

White Plains.

Sell, E. H. M.

*OHIO.**Akron.*

Bradley, Isabel A.

Cleveland.

Tuckerman, J. E.

*PENNSYLVANIA.**Allentown.*

Butz, J. Treichler.

McGettigan, E. J.

Raub, F. D., Supt. of Schools.

Smith, C. J.

Weaver, Thomas H., Medical Inspector.

Bethlehem.

Boyle, F. T.

Clewell, Rev. J. H.

Farrar, H. B.

Roest, Edward C.

Schweinitz, Rev. Paul de

Coaldale.

Beale, J. E.

Easton.

Fretz, John E.

Green, Edgar Moore

Heberling, J. S., Supt. of Carter Junior Republic.

McIntire, Charles

Emaus.

Backenstoe, M. J.

Harrisburg.

Schaeffer, N. C., State Supt. of Education.

Steele, W. S., Principal High School.

Haverford.

Winton, Mary

Hecktown.

Beck, Richard H.

Johnstown.

Wray, Gertrude W.

Kutztown.

Grim, James S., Professor of Biology, Normal School.

Lansford.

Kuntz, Elmer E., Boro Supt.

Mauch Chunk.

Bevan, J. J., County Supt. of Schools.

Jackson, H. R., Principal of Schools.

Norristown.

Weaver, Joseph K.

Philadelphia.

Alexander, Lydie C.

Cornell, Walter S., Director of Medical Inspection in the Public Schools.

Egbert, Seneca, Dean Medico-Chirurgical College.

Moxey, A. F.

Neff, J. S., Director of Public Health and Charities.

Nusbaum, Louis, Dist. Supt. of Schools.

Richards, Florence H., Medical Director of William Penn High School.

Spiegle, Grace E., Professor of Hygiene, Philadelphia Normal School.

Stilwell, Mrs. Clara P. H.

Thomas, Miss Sara P., Supt. of Scientific Instruction, Pa. W. C. T. U.

Phoenixville.

Laramy, Robert E., Supt. of Schools.

Pittsburgh.

Burns, H. B., Medical Inspector.

Chambers, Will Grant, Dean School of Education, Univ. of Pittsburgh.

Edwards, J. F., Supt. of Bureau of Infectious Diseases.

Martin, Elizabeth L., Professor of Hygiene, Carnegie Technical Schools.

McCready, E. Bosworth, Medical Director Hospital School for Backward Children.

Savage, W. L.

White, William C., Medical Director Tuberculosis League.

Richlandtown.

Brown, Walter H.

South Bethlehem.

Dinan, Elizabeth A., Probation Officer.

Drinker, Henry S., President, Lehigh University.

Emery, N. M., Vice-Pres. Lehigh University.

Estes, William L.

Hughes, Percy, Prof. Philosophy and Education, Lehigh University.

Miller, Mrs. B. L.

Richards, Mrs. J. W.

Sassaman, Clara.

South Langhorne.

Randall, Helen M., Supt. Foulke and Long Institute.

Spring City.

Carey, H. M., Supt. Eastern Penna. State Institution for the Feeble-Minded and Epileptic.

Weatherly.

Zichman, W. L., Supervising Principal.

West Chester.

Baker, Jane K.

Ehinger, C. E., Physical Director State Normal School.

RHODE ISLAND.

Providence.

Putnam, Helen C.

I.

REMEDIAL CONDITIONS IN THE FEEBLE-MINDED AND BACKWARD.¹

By WALTER STEWART CORNELL, M.D., Philadelphia, Director of Medical Inspection in the Public Schools.

This subject derives its practical importance from the recent increase in our knowledge concerning the hereditary transmission of feeble-mindedness, the association of feeble-mindedness in many cases with pauperism, vice, illegitimacy and crime and the present endeavor by those interested in social work to induce those in authority to provide more and better facilities, for the feeble-minded in institutions, and for the dull in special classes in the public school system.

The problem of remedial conditions in the case of *dull* children is theoretically simple, because here only the common and familiar defects of malnutrition, defective vision and defective hearing, and the social defect of poor home conditions need be considered. Marked improvement of the feeble-minded however is a difficult unsolved problem, and the hope of improvement of border-line cases (a numerous group) is almost as remote owing to the existence of feeble-mindedness in a large proportion of these cases and to uncertainty of diagnosis in all.

In this short paper, the feeble-minded and the dull will be discussed separately, its purpose being to emphasize the basic differences between the two groups with consequent basic differences in treatment and in expectation of improvement.

FIRST, CAN FEEBLE-MINDEDNESS BE CURED?

At the present time no means are known whereby a feeble-minded person may be made into a normal individual. The only exception is found in that special type of the feeble-minded, known as cretins, who are cured or marvelously improved by the administration of thyroid extract. The cretin type, however, constitutes but a fraction of one per cent. of all the feeble-minded.

The hope of complete cure is based on several theories which are at least worth considering. The slender chance afforded by

¹ Read at the Conference on the Conservation of School Children, Lehigh University, April 3, 1911.

them, however, certainly does not extend to those feeble-minded persons (about one-fifth of the whole number) who are the result of brain injury or brain disease affecting normal individuals in early life. Also hope of cure in all the feeble-minded, no matter what medical discoveries may be made, must diminish with increase of age, since there is a physiological law that any part of the body retarded too long in its development is incapable of full normal growth.

For the sake of clearness, it may be well to set down categorically the different theories of the cause of feeble-mindedness and then consider these causes and the appropriate remedies serially.

1. *Exhaustion of nervous vitality.*
2. *Exhaustion of general vitality.*
3. *Abnormality in the cellular elements throughout the body, arising from some abnormality in one or both parental germ cells.*
4. *Under-function of one or more of the glands of internal secretion.*
5. *Origin through miscellaneous causes, such as organic brain injury, cortical sclerosis, hydrocephalus, intoxication by syphilis and alcohol, lack of thyroid and possibly other internal secretions, general degeneracy, etc.*

First may be considered the plan of improving the general tone of the nervous system with a consequent improvement in all its functions. So far as the feeble-minded individual is himself concerned, this course of treatment is the one now pursued in our special training schools, where general hygiene and where special mental education based on systematically exercising special sense functions, perception, memory, association and reasoning, are employed. Experience has shown that the feeble-minded individual himself is never cured of feeble-mindedness by the most vigorous training and what hope exists is for his offspring possibly several generations remote. Our heredity records have shown the transmission of feeble-minded stock, but *not* the *generation* of feeble-minded stock with the *subsequent transmission* of feeble-minded stock. Neither do

any of the animal breeding experiments so far conducted show such improvement as to furnish an analogy to the reverse process of gradual raising of feeble-minded humans to the level of normal humans. Another objection to this theory is found in the possession of numerous and general original physical defects in the feeble-minded, pointing to a *general* inferior structure rather than inferiority in the nervous system alone. A final objection, or rather discouraging feature is that insanity, often cured by a hygienic régime, is now known to have but little relation to feeble-mindedness and feeble-mindedness is by far the more transmissible and non-improvable of the two.

Cases of feeble-mindedness apparently produced by parental alcoholism or by congenital or inherited syphilis may be brought forward for discussion as results of diseases which particularly select the nervous system for destruction, but our knowledge of the proportion of the feeble-minded arising from these diseases is at present so uncertain, and the number of the cases is so uncertain and so relatively small, that they are better considered as a separate group.

The second theory of a possible cure of feeble-mindedness is based on improvement of general vitality. We know that the feeble-minded display not only low mentality, poor co-ordination, low nerve-muscular tone, but also inferior musculature and a poor resistance to infectious diseases. Their expectation of life is short because tuberculosis and pneumonia attack them readily. Some reach the age of twenty or thirty years and then appear to deteriorate simply from premature decay. The tentatively accepted theory of the (special) Mongol type of the feeble-minded is that of exhaustion of the germ cells of one or both parents, with the production of weakling unfinished offspring. Corroborative of this theory is the proven great number and variety of physical defects in the feeble-minded, the argument being that the cells of the embryo have not possessed the requisite vigor of division and arrangement. For instance, over forty per cent. possess eyes which would require glasses if their possessors use their eyes for reading. Sixteen per cent. show original myopia. Valvular disease exists in twelve per cent. of all cases (it is ac-

knowledgeed that some of these are not congenital). Malformations of the sexual organs, skin appendages and viscera are quite common. The average height of feeble-minded males of twenty-five years is $62\frac{1}{2}$ inches as compared to $66\frac{1}{2}$ inches height seen in the normal. Can anything be done for this general condition of degeneracy and low vitality, conceding this to be the correct explanation of the condition? The answer must be found in animal breeding experiments, and those so far carried out by the American Breeders' Association and by the Carnegie Institute have not as yet reached the goal of raising normal from degenerate stock.

Can feeble-mindedness be cured if due to a perversion or absence of the molecular elements in a germ cell and subsequently in the body cells developed from the germ cells? In other words, if the cytoplasm is leaky or one of the chromosomes is too short or whatnot, in every embryonic cell, and this in some way incidentally produces feeble-mindedness, can anything be done?

It should be noted that this conception of feeble-mindedness is entirely different from that in the two ideas previously considered. In them the feeble-minded represent simply the lowest stratum of mentality in the human race, and all humans may be arranged in a series with insensible gradations beginning with the most intellectual person and ending with the lowest grade idiot. According to this conception, the differences are simply quantitative. In the theory now considered feeble-mindedness may be looked upon as a sport on the normal human stock (using a botanical term), and therefore constituting a distinct anthropoid species with the power of transmitting itself and (assuming two feeble-minded parents) without the power of again producing normal persons. The difference according to this theory is not quantitative, but qualitative. Regeneration of normal stock is hopeless if both parents are feeble-minded, and hopeless in a predestined number of cases if one parent is feeble-minded.

The records of animal breeding experiments, and most family records of the feeble-minded, do not show with certainty that the feeble-minded are a group with definite structural peculiarities transmissible over and over again. Two small groups of types

of the feeble-minded, the microcephalic and the amaurotic idiots may be exceptions and exemplify the theory, and among the general mass of feeble-minded an occasional remarkable family tree is seen which apparently follows some definite natural law of reproduction. There is a heredity chart at the Training School for Feeble-Minded Children at Vineland, which shows the reproduction of feeble-minded persons regularly and constantly through several generations after a young man of normal family had had vicious relations with a feeble-minded woman. The identity of this man, now dead, is known; and his descendants by his legitimate wife are among the soundest and best citizens of New Jersey. Certainly if proof of this indefinite transmission of feeble-mindedness is once obtained, the necessity for segregation or sterilization of the feeble-minded can be no longer ignored. It must be acknowledged, however, that so far our proofs are too faulty to provide conclusions except by inductive reasoning.

Most of the clear cut heredity experiments are carried out in plants, rather than animals, and the special characteristics, known to be produced in humans (albinism, hemophilia) do not have any close relation to feeble-mindedness, nor are they found in feeble-minded persons more than they are in normal persons.

Taken together, it would appear more correct to account for the tendency of feeble-mindedness to transmit itself by the well known tendency of any poor nervous system (whether the case be one of neurasthenia, hysteria, insanity, feeble-mindedness, Friedreich's ataxia, or a muscular dystrophy) to transmit itself, rather than by some more specialized explanation.

The most hopeful, *a priori*, of the theories of the causations of feeble-mindedness is that one which accounts for the condition by a deficiency of certain body secretions whose function is to activate the brain and nervous system generally. The glands performing this work are certainly the thyroid and the anterior portion of the pituitary. The thymus gland apparently acts at times as an accessory thyroid and probably has other functions as yet unknown. The posterior lobe of the pituitary, the suprarenals, the sexual glands, pineal gland and certain glands in the head of the pancreas may contribute elements affecting

body growth and mental development. Knowing as we do that cretinism (one of the two sharp types of feeble-mindedness) is due to deficient thyroid secretion, it is plausible that mongolianism (the other one) is due to lack of some other secretion, say the pituitary. Possibly the general mass of the feeble-minded showing no particular type of characteristics, are due to a general shortage in the secretions of these glands. Recently Dupuy, a French investigator, has published a paper (*Bulletin médical*, Jan. 3, 1912) claiming remarkable results from mixtures of thyroid, pituitary, corpus luteum and orchitic extract, the proportions of these varying according to the case. Experiments conducted at the Training School at Vineland, New Jersey (by the writer on Mongols with a mixture of pituitary and thyroid extracts, and by Drs. Dana and Berkeley of New York with extract of pineal gland), have seemed to produce improvement in individual cases and in the case of the pineal feeding, a very slight but appreciable improvement in most of the cases treated. Knowledge of this phase of nutrition and mental development is unfortunately still in the experimental stage.

Finally must be considered the theory that feeble-mindedness is not the expression of one or two or three morbid conditions but rather of a considerable number, and that each must be considered separately so far as medical treatment is concerned. In favor of this view is the long list of causes, some hereditary and some originating in the individual, which reasonably account for the condition. Parental feeble-mindedness, parental alcoholism, parental old age with declining physical vigor, parental malnutrition from overwork or tuberculosis, injury to the head at the time of birth, infantile cerebral hemorrhage, meningitis, hydrocephalus, cortical sclerosis, congenital syphilis, deficiency in thyroid secretion, deficiency in pituitary secretion and deficiency in pineal secretion must all be remembered. It is true that a great proportion of the feeble-minded show feeble-mindedness in their ancestors, but the hereditary factor producing the feeble-mindedness may possibly be different in different cases, so that even here, we may not possess a large solid group of one particular sort. If any of the theories already mentioned should

succeed in giving us a cure for feeble-mindedness, it would therefore be only in one special group, and the other groups would still remain a problem. Rather a depressing prospect for the research worker, but one that might as well be recognized at the outset.

NEXT, MAY BE CONSIDERED SUCH IMPROVEMENT OF THE FEEBLE-MINDED AS IS NOW POSSIBLE WITH OUR PRESENT KNOWLEDGE AND METHODS.

One hundred years ago, Seguin changed the view point of the world toward the feeble-minded by treating them as children with weak minds, rather than as unfortunate objects fit only for a hospital or an asylum and not worth considering except as specimens of disease. In our own day, Barr of Elwyn profoundly stirred the social conscience regarding the feeble-minded by his book on mental defectives in which the human child was emphasized rather than his anatomic defects. Since then the education, or better, let us say training, of the feeble-minded, has become a recognized special work and this in turn has vivified the subject of psychology, and remarkably improved our methods of teaching all children. Today the mental improvement of the feeble-minded child is accomplished in the school-room, shop and garden, rather than in the hospital. With a system born of a psychological knowledge, the lowest grade cases are trained in the simpler mental processes of sense perception, perception of number and form, attention and memory, and the higher grade cases are trained to industrial work and to such reasoning power as can be produced. To give the feeble-minded brain its best opportunity, the eyesight, hearing and nutrition are given medical attention when necessary. Recently tests (by the late Prof. Binet) measuring the mental development of children from three to thirteen years have been devised and those for the ages of three to ten years inclusive are quite accurate. By these tests the interesting fact is shown that even with the best training methods, the rate of improvement is discouragingly low and the feeble-minded child drops steadily further and further behind. This fact brings home the great price in effort paid by our educational and institutional authorities in the training of defective children,

and the wear and tear on the individual teacher as well. It also emphasizes the danger of too much school training for a feeble-minded child lest his condition be masked and society made ultimately to suffer from his pauperism or delinquencies while at large in the community.

We should always bear in mind that physical defects found in the feeble-minded are not necessarily causative of mental deficiency. Very often, these physical defects are simply associated conditions and the expression of a generally defective make-up. Some forty per cent. of the feeble-minded possess eyes of a character requiring glasses, if the mentality were sufficient to warrant the procuring of them. The open mouth seen in these children is not always due to originally existing adenoids; the jaw is dropped and the child has not sense enough to close it. Thereafter the adenoids may appear secondarily, because of the constant mouth breathing.

THIRD, A FEW WORDS ON THE REMEDIABLE CONDITIONS IN THE CHILD WHO IS NOT FEEBLE-MINDED, BUT SIMPLY DULL.

The treatment is exactly the same as that already outlined, namely, the clearing away of such obstacles as poor nutrition and defects in the special senses, individual attention in order that difficulties may be overcome, the training of the senses to better acuteness through the systematic exercises, the training of the motor side through physical and manual training, and the assistance of the sub-normal intellect by the use of measures involving association.

The Montessori system and other recent systems less talked about consist simply of these methods, although in the Montessori system a certain emphasis is laid on the education of the sense of touch. The truth about all these systems is that special measures are necessary in the case of deficient children and superfluous in the case of bright children. For instance, the dull child has to be shown how to add by means of balls strung on a wire, but the bright child discards this mechanical device after a few lessons and thinks quicker than it takes to count the objects. The same rule applies to our present method of teaching reading in which syllables rather than individual letters are taught.

Compared to the old method of teaching the letters first, it is better for bright children and worse for dull children.

Physical defects and environment have more relative influence in the case of dull children than they do in the case of feeble-minded children in whom the deficiency is often inherent and obtained in feeble-minded parents. A study by the writer of the influence of defective eyesight in school children showed that the children of normal vision obtained an average of seventy-five points, those of fair vision an average of seventy-three, and those with quite poor vision an average of sixty-nine. An analysis in the report of the London County Council for 1904 of the scholarship of 32,000 school boys and 29,000 school girls showed that the vision was progressive with the scholarship except in the case of the very brightest children whose eyesight was not quite as good on the average as the children classed as bright but not precociously bright. The relation of adenoids to dulness is so well established that it would be superfluous to detail the different investigations reported. As to defective hearing, it is well to note that most cases of defective hearing arise from adenoids and the two may therefore be considered in the same group, but a special study given in the report of the London County Council for 1907 showed that poor hearing existed in almost twice as many of the dull children as it did in the bright children.

Experience has shown that dull children under improved conditions of health, environment and school training may be greatly improved mentally.

A very interesting study made in one of the special classes of one of the Philadelphia Public Schools demonstrated that the average child before entering the class had accomplished about thirty-five per cent. of a grade per year, and after entering the class had succeeded in accomplishing eighty per cent. of the grade per year. This improvement does not necessarily imply that these children were made into normal children, for the work done in the special classes was that ordinarily done by younger children, but it certainly has a value from a comparative standpoint and points the way to the improvement of great numbers of children now failing to do the ordinary school work.

DISCUSSION.

Dr. Maximilian P. E. Groszmann, Plainfield, N. J.:

I have a great interest in the backward child, and would like to plead particularly that the backward child should not be always mentioned in the same breath with the feeble-minded child. I think that is a mistake which does an injury to the interest of the backward child. As Dr. Cornell has so clearly shown, the feeble-minded, as we understand him, is incurable. We may remedy some of the difficulties so that the feeble-minded child may not be altogether a burden to society. Some may be so educated that they can pay by their labor for a part, sometimes for the greater part of their maintenance.

The backward child, however, is a subject for a great deal of interesting and valuable study. He is simply a child with some sort of retarded development, whatever the cause may be. There are of course causes in which the physician is interested. Dr. Cornell has mentioned some—defective teeth, defective eyesight, or breathing, or hearing. All these are common causes of some of the backwardness in children as seen in the schools. For backward children are needed special methods of training, and for certain classes even special institutions, which give the proper environment. The backward child is really the most misunderstood child. He is too often confused with the feeble-minded. The statement was made sometime ago that there is very little difference between backward and feeble-minded children, that it is difficult to make a distinction, and that most of the backward children of the public schools are really feeble-minded. I cannot conscientiously subscribe to this statement. There are, of course, border line cases in which it is difficult to differentiate. The difference, however, lies in the fact that the backward child is educable, perhaps at a very slow rate, but always opening more and more towards the normal; while the feeble-minded child has such a defective brain that it cannot be developed beyond a certain narrow limit, and represents *arrested* development. Let us understand that the backward child may be a slow-growing genius, and he perhaps the stronger for the fact that he grows so slowly. We have had evidence that some of our best men in history have been very slow growers in childhood. The backward child may be one for whom the school conditions under which he lives are not the proper ones. Our public school system is very much in need of improvement towards greater elasticity, so that the individual needs of the children may be better understood. At present, with certain exceptions, the school—and I do not mean the public school only, but the private school as well—measures all children very much by the same standard and does not recognize the difference between types. There are certain types which in the wrong school environment will be backward, but which, if placed under the right influence, will all at once throw off the bonds and fetters and will grow. Therefore the problem of the backward child is a problem much more com-

plicated than that of the feeble-minded. The main study of all educators, with the help of the physicians, should be how to help the backward child, how to rescue the backward child and give the backward child his or her chance in life. You will see by the résumé of the next paper, that the feeble-minded children constitute 3 per cent. of the entire school population. We may with a certain amount of justification say that the backward child would represent about 13-15 per cent. of the entire school population. That means that the problem of the backward child is even as far as numbers are concerned a very much bigger one than that of the feeble-minded child. Nevertheless, both are present in our public and private schools. It must be admitted that even the problem of the backward child is not easy of solution, that we are not able to say to what extent his difficulties can be relieved. There are so many different types and conditions that much study is needed. Every teacher, physician, and social worker will simply have to do what is in his power to bring this great problem before the general public and before the legislators. I read this morning that the longed for establishment of a Federal Children's Bureau has been effected. Its work may help materially in determining how many of the backward children, of the misfits in society, can be reached by educational, medical and social methods.

Dr. J. E. Tuckerman, Cleveland:

I have in mind a girl from a small country town in which there was no good oculist. The girl had a very high error of refraction, and steps had been taken to send her to a school for feeble-minded children, because she could not learn, and was so indifferent. The correction of the error made a very remarkable change in her. Although she was nearly 13 years of age, she had not reached more than a seventh year grade in school. I think we must be very careful not to commit a child as lacking in mentality, when there may be only a physical defect. This is particularly true when the physical defect is not that of hearing but of a high error in refraction, which makes it not only impossible for a child to see distinctly, but impossible for it to tell the difference between letters such as E or B. When the eye brings the upright lines into focus the horizontal are out of focus, and *vice versa*. In this instance, a serious injustice would have been done this girl, had she been put into a school for feeble-minded. This brings out the fact that we have overlooked in our educational system a proper study of the developmental defects of children.

Dr. H. M. Carey, Spring City, Pa.:

The little that can be done for the feeble-minded in institutions must be begun early. Through the action which our Legislature has taken in connection with the schools in this state, we now have in the majorities of the cities a corps of nurses, inspectors, and physicians working harmoniously with the state institutions, and the people in the institutions depend upon them to send the class of cases that should be seen early. It is not well to make

promises to parents of what can be done, but the fact should be impressed upon them that such cases require special training, and if anything is to be accomplished they must come under that training very early. I agree heartily with Dr. Groszmann's statement that the backward child is exceedingly maligned by being classified with the feeble-minded. Much of our work is hindered because of the confusion of these two conditions.

Dr. Cornell, closing:

The thought I particularly wanted to bring out is that there should be a distinction between feeble-minded and backward. The principal confusion, I think, is one of terms. We never have had a definite series of terms upon which we all agree. Personally, I look upon all children who cannot do ordinary school work, as mentally deficient children. They are not necessarily feeble-minded, and not necessarily defective in every mental process, but they are deficient somewhere. This is shown in the public schools, the curriculum of which is graded to suit the average child. In the mentally deficient I separate those who are feeble-minded from those who are dull and backward. There is a border line, comprising many cases exceedingly difficult to diagnose. We have all seen cases of remarkable improvement under the right conditions. We should have special schools and institutions which provide for different grades of mentality or separate institutions. Idiots should not be placed with those of better mentality. The actual feeble-mindedness seems to be in about the same proportion among the foreign element as in the native-born Americans.

II.

METHOD OF SECURING STATE APPROPRIATIONS FOR PROPER SEGREGATION AND CARE OF FEEBLE-MINDED.¹

By JOSEPH S. NEFF, M.D., LL.D., D.P.H., Philadelphia, Director Public Health and Charities.

I presume I was requested to bring this matter before the Conference, owing to the fact that the City of Philadelphia received an appropriation from the State Legislature at the last session. My experience, of course, is limited to this state, but experience, human nature and politics are the same elsewhere.

We followed, to a great extent, the scheme used by Mr. Johnstone, of Vineland, N. J., when he was successful, a few years ago, in securing an appropriation from the Legislature of that state for the institution of which he is superintendent.

It is useless to endeavor to secure aid from those residing outside of your district or city, until you secure the coöperation; the interest and enthusiasm of the local community; first through publicity, interest your philanthropists and social workers, then the local legislators and prominent politicians. The next important step is to secure the interest of the Governor and the chairmen of the Appropriation Committees and each individual member of those committees. You must learn to know the men who finally pass upon the measure, whether they are independent of thought and action, or are absolutely controlled by others—in the latter event it is useless to waste time or writing material. Much time and effort is wasted on unimportant and dependent men. It is better to concentrate on the leaders and their influences than spend too much time on the many—although all should receive at least the compliment of a circular letter, even if it does no good, rather than omit some little-known representative who may be offended by the oversight. Success in winning absolutely dependent members to your view avails nothing, if they depend upon the dictation of others for their final

¹ Read at the Conference on the Conservation of School Children, Lehigh University, April 3, 1912.

vote. First get your own community solid. Start with your associations organized for the general uplift, civic and religious; addresses should be made to them, showing the need for the proper segregation of the feeble-minded, the dangers existing without it. Show, whenever possible, the saving to the taxpayer; where the feeble-minded are uncared for, show the cost of maintenance in jail, reformatories, courts; show their lawlessness, their being easily moulded for crime, the menace to the community in which they live, the rapid propagation of the species by allowing women of child-bearing age to remain at large, making an ever-increasing cost to the community. The cost is easily remembered, but the saving is forgotten. Then, with their aid, organize a local publicity campaign. Ascertain the leaders of the delegation to the Assembly, interest their family physicians, whose judgment they accept, and use personal effort of the best business interests on them individually. Through newspapers and local magazines, show individual cases, reports of hospitals and public institutions that center attention to the home town and bring facts to their own hearths. If the local delegation is not thus enthused and united in the movement, you cannot reach them by the influence of other sections, and it is useless to carry the campaign further. If they are now in favor of the measure, they must be supported by a state wide campaign, or at least by the support of their fellow legislators from other counties. Ordinary letters to these gentlemen, as a rule, are without avail; you must reach them through local interest of their particular constituents, those upon whom they are dependent for votes for their election.

In the case of the feeble-minded, you must learn the number in their home district who are not properly cared for, applicants to state or private institutions. Now is the time to get in touch with families—the mother who has exhausted every effort to have her feeble-minded child placed in an institution—a child just as dear to her heart as her others, if not dearer, through affliction. She must be informed of the request for the appropriation which, if obtained, may make room for her child, or, if a distant county, the crowded state institution of that section will be relieved by the removal of patients chargeable to the county seeking

the appropriation, which may make a vacancy for her child. Have these individuals write or see their member of the legislature, to urge the appropriation, as they will directly benefit. It is needless to circularize the members themselves, until the session opens, as any mental impression made by such literature is apt to fade away, but then they should receive short pamphlets about every ten days, setting forth the different phases of the subject, statistics, the importance to the state, not dwelling too much on the conditions of your own city. These should be sent to the home and not to the state capitol, where they would find a rapid route to the waste paper basket, with the mass of literature on so many bills. In the home it may be read by the wife or daughter, who will certainly talk on the subject to the head of the family if it is well presented.

Following the circulars, timed just before the matter is taken up by the Appropriation Committee, a personal letter should be sent the legislator, giving the individual names of those not provided for in his own bailiwick, and all detail, of which he already has knowledge through the personal solicitation of the families and their friends, if your campaign has been properly carried on.

So, when the matter comes up for final decision by the Appropriation Committees, there will be but few who have not detailed knowledge of the subject, and from a source they cannot ignore. After the bill is passed you must not relent in your eternal vigilance until it has received the signature of the Governor, for there is so much asked in excess of funds available that much influence is brought to bear for other matters. It is quite common for legislators to make a deal with each other to take away from measures already passed, to procure more for their own pet schemes that no one else is interested in, thus, by promising to work for the other's interest, to secure aid for themselves, so that quite strong cliques are formed.

Then again, it at times becomes necessary for the Governor to cut appropriations, to bring them within the income of the state, and unless you are "on the job" you will be the one to suffer.

This is the general outline; of course, there will be local condi-

tions, and combinations, especially for private institutions that must be watched, and the plan of attack changed accordingly.

You must not forget that the leaders of thought and of political party must be unopposed, and should be not only with you for success, but must be kept with you, for, as the exigencies of a busy session arise, they are easy to lose at almost any time.

One argument used against the appropriation was that it was "an unsafe precedent to make" an appropriation by the state to a municipality, which was answered by the statement that the most economical thing the state could do would be to make such an appropriation to every municipality which agreed to perform the moral duty of the state to care for its mental defectives, thereby taking from the commonwealth the cost of maintenance.

My personal belief is that the state should perform its obligations to its own before it gives away a single cent to private charities, and the mental defectives are one of its most important obligations. When these are performed, then the balance of the income could be given away.

Appropriations were made to private charities, as follows:

1879.....	93, 500
1889.....	750, 000
1899.....	1, 250, 000
1909.....	5, 200, 000

It is difficult to stop this abuse, for each representative is interested in securing as much as possible for the private institutions in his own county, and makes his deals with others by exchange of votes; if he is not successful, it comes hard for him to be returned at the next election.

If, in the past twenty years, there had not been this tremendous increase in appropriations to private institutions, ample appropriations, instead of skimmed ones, would have been made to state institutions. Rittersville would have been opened six years ago, Spring City would be equipped for its full quota, and proper care given to this class of defectives, the burden to-day would be lighter, we would have a decreasing instead of increasing number of feeble-minded, which would make for a better level of physical strength and a higher grade citizen.

DISCUSSION.

Dr. M. P. E. Groszmann, Plainfield, N. J.:

Dr. Neff spoke of the appropriations to private charities in contra-distinction for those which the state votes for its own needs for the feeble-minded and others. I think I know what he means and I agree with him, but I think he ought to be a little clearer in what is meant by these private charities. If they are doing the work which the state ought to do but does not do then they are positively deserving of state appropriations. Of course it is a bit ludicrous to find that the state appropriates to private organizations money which it should put to its own needs. This problem of whether appropriations to institutions are legitimately such which the state ought to make or whether they are fraudulently obtained is one which ought to be more fully investigated. Many of us know that a number of so-called private charities are simply pet schemes of people who have nothing better to do, while other private charities are doing work which the state should do.

Dr. J. E. Tuckerman, Cleveland:

I would like to inquire whether there is any way whereby we can ascertain whether these private charities receiving money from the state put it to the use for which it was appropriated.

Dr. Neff, closing:

I probably was not thoroughly understood. I do not oppose appropriation of state funds to private charities, but believe that the state should first give to its own institutions; when they are properly provided for any balance left should be divided among the private charities, but not before. In regard to fraud I would say that six or seven years ago there was great criticism of the distribution and expenditure of money to private institutions. The question was studied carefully by the state authorities, as a result of which every institution asking state aid was required to give a detailed description of their institution, the number of beds, photographs of their wards and buildings.

A special accounting department was organized in Harrisburg, and all hospitals receiving state aid, were compelled to keep their books in accordance with instructions from that accounting department. State auditors inspected the accounts of the institutions quarterly and certified their correctness to the proper state official before payments were made. So far as I know, in recent years money appropriated by the state, to these private institutions, has been properly spent. I would not wish to be misunderstood in saying that these private institutions do not do some of the work that the state should do. To care for the aged and infirm is the county's duty and not the state, but care of the defective classes I believe to be the duty of the state. I am absolutely in favor of devoting every last penny of the state's income, after state institutions are provided for, to those private institutions which are worthy and do much good.

III.

HOW FAR SHALL THE PUBLIC SCHOOL SYSTEM CARE FOR THE FEEBLE-MINDED?¹

By ANDREW W. EDSON, New York City, Associate City Superintendent of Schools.

The feeble-minded children who should be in attendance at public schools are those children somewhat below par in mental acumen, possibly merely of slow development, yet susceptible of intellectual growth. Idiots and imbeciles are institutional cases, not public school charges. A careful examination by a specialist may determine if a child proposed for a special class is hopeless and should therefore be committed to an institution. A very large number of cases, however, must necessarily be those on the border-line between imbecility and merely slow development, cases that even trained experts find it difficult to diagnose with certainty. These are the children who by the right kind of training may improve intellectually in a very marked degree or who by neglect will soon sink into a hopeless and helpless condition. If educable, even to a limited extent, their place is in a special class in the public schools.

Modern education emphasizes one principle clearly: *Every child is entitled to all the education which he is capable of receiving.* This principle applies to *all* children, not only to the great majority but to the mentally and physically handicapped *irrespective of cost.* The very fact of existence gives the child the right to a training that will lead him to be happy, self-respecting, and self-supporting. One very noticeable feature in the training of children is the fact that they are happy, or likely to be, when usefully employed. And while children of low mentality may never become leaders, may need oversight and guidance throughout their lives, yet if they have learned to use their hands to advantage, the elements of a trade possibly, they may be self-supporting, or at least less of a burden upon their families and upon the state by reason of the training received. This alone is enough to warrant the expenditure.

¹ Read at the Conference on the Conservation of School Children, Lehigh University, April 3, 1912.

The *right of a child* carries with it the *duty of the state* to provide this training. A handicapped child is a great burden upon any family and is likely to be a menace to society. As an economic measure, therefore, the expense of an education should be borne by the state even if the per capita cost is heavy.

The particular reasons why a child slightly sub-normal should be educated in the public schools, in school buildings with normal children, though not in classrooms with them, are: (1) This arrangement is an economic one. Taxpayers and members of boards of education are obliged to consider the expense entailed in any educational proposition, especially in one that is a decided departure from traditional usage. A suitable room in some school building can be secured easily and equipped at small expense. In some cases it may be necessary to consolidate classes in order to provide a room, even to put some of the younger pupils on part time, but it should be done. Part time is not a serious evil for pupils of the first year-grade. (2) The matter of travel to and from school is a serious consideration for feeble-minded children. Public school buildings are usually located near homes and are easy of access. (3) The opportunity to go to and from school with normal children, to associate with them on the playgrounds and in some of the general exercises of the school must be of the highest value to children of undeveloped mentality. Such association for a portion of the day must have a tonic influence upon them, a decidedly better effect than would the realization through complete isolation that they are set apart as dullards. (4) And the leading argument perhaps is based upon the fact that these feeble-minded children are of all grades of dulness, some of them but a little off from normal, cases of slow development it may be, and possibly behind grade in only one or two subjects. By having the classes of sub-normals in ordinary school buildings, the children may be allowed to go to regular grade classes at certain periods each day and in certain subjects in which they show the most interest and greatest aptitude. In this way many a child may soon be transferred permanently from the special class to the regular grade class gradually and naturally.

A strong argument for the assignment of these exceptional children to special classes is the relief to the teacher and children of regular classes; a great burden is thereby lifted.

In order to understand just how one city handles this question, I may be permitted to explain briefly the plan followed in the City of New York which has 120 classes of mental defectives in its public schools.

In the first place the principal and class teacher make note of children who by their looks, language, or actions give indication that they are peculiar—that they are freaks or unusually stupid. After a few days of special observation the following blank is filled out in regard to such and forwarded to the Inspector of Ungraded Classes as they are called:

OBSERVATIONS ON CHILDREN PROPOSED FOR AN UNGRADED CLASS.

P. S., Borough.

Name. Address.
 Age. . . . Grade. . . . Nationality F. M.
 Years in U. S. Home Conditions.
 Health Records: Nutrition. Bone Dis. Enl. Gl.
 Teeth. . . . Throat. . . . Nose. . . . Vision R. L.
 Hearing R. L. Nervous Disease.
 School Records: Kn'dg. . . . terms 1A. . . . terms 1B. . . . terms.
 2A. . . . terms 2B. . . . terms 3A. . . . terms 3B. . . . terms Spec'l.
 School att. . . . Cause of Irreg. att. Absence in last.
 two terms. . . . Attention. . . . Memory. . . . Oral Exp.
 Hand Work. . . . Phys. Tr. Number. . . . Reading.
 Writing. . . . Spec. Tastes. . . . Disposition. . . . Behavior.
 Habits. . . . Peculiarities.
 Other information.
 19. Principal

As soon as possible the Inspector and the Medical Examiner call at the school and make a thorough examination of the child, entering their observations upon the following blank:

SPECIAL MEDICAL EXAMINATION.

P. S.	Borough.	191.
Name.		
1. General Condition.		
A. Anatomical.		
Cranium.		
Facial Asymmetry.		
Palate.		
Teeth.		
Tongue.	Lips.	
Eyes.		
Ears.		
Limbs.		
Skin.		
Body in General.		
B. Physiological.		
1. Motor Function.		
Tics.	Tremors.	
Epilepsy.	Nystagmus.	
Promptness.	Coördination.	
Prehension R.	L.	Gait.
Speech.	Fatigue.	
2. Sensory Function.		
Eyes R.	L.	Ears R.
L.		L.
3. Condition of heart.	Pulse.	
1 C. Psychical.		
Balance.	Proportion.	
Moral Sense.	Attention.	
Memory.	Will.	
Peculiarities.		
D. Development-Att. Diseases.		
E. Family History: Births.		
Miscar.	Deaths.	
Cause of.	Diseases F.	M.
		Medical Examiner
Recommendation.		
		Insp. Ungraded Classes

If it is decided that the child is below par, he is sent to some ungraded class near at hand. Here in a class of from 10 to 15

pupils he is given individual attention with special emphasis upon physical and manual training. At every point an attempt is made to arouse his dormant energies, to strengthen his muscular and nerve powers, to cultivate self-control, and to strengthen his intellectual, moral, and esthetic faculties.

A pedagogical record is made four times per year in order to enable the Inspector of Ungraded Classes to note possible improvement. The following is a copy of the record sheet:

PEDAGOGICAL RECORD.

P. S.	Borough.
..... 19. ....	..... 19.
Name. ....	.....
Sept. 20 Dec. 20 Mar. 20 June 20	Sept. 20 Dec. 20 Mar. 20 June 20
Sense Training. ....	.....
Taste. ....	.....
Smell. ....	.....
Touch. ....	.....
Sight. ....	.....
Hearing. ....	.....
Physical Train. (imitation). ....	.....
Physical Train. (command). ....	.....
Writing. ....	.....
Industrial Training. ....	.....
Language (oral). ....	.....
Language (written). ....	.....
Reading. ....	.....
Arithmetic. ....	.....
Nature Study. ....	.....
Personal Habits. ....	.....
Self Control. ....	.....
Effort. ....	.....
Gen'l Information. ....	.....
Power of Attention. ....	.....
Power of Memory. ....	.....
Power of Judgment. ....	.....
Gen'l Health. ....	.....
Fatigue. ....	.....
Attendance. ....	.....
.....	Teacher

From time to time a medical re-examination is made as per the following:

MEDICAL RE-EXAMINATION.

P. S.	Borough	191
Name		
General Condition		
Nutrition		
1. Motor Function		
Tics		
Tremors		
Epilepsy		
Nystagmus		
Promptness		
Coördination		
Prehension, R.	L.	
Gait		
Speech		
2. Sensory Function		
Vision, R.	L.	
Hearing, R.	L.	
3. Condition of Heart		
Pulse		
Throat		
Remarks		
		..... Medical Examiner

It is our purpose to select class rooms that are large, sunny, and easily accessible from the street and to the playgrounds and sanitariums. The special equipment is fifteen movable and adjustable seats and desks—fifteen being as large a number of pupils as can well be handled in a class—four shop benches and equipment, physical training equipment, a piano if possible, running water, and porcelain sink.

The course of study is adapted to the needs of individual pupils, manual and physical training predominating. The greatest liberty possible is allowed teachers in adapting the present course of study for the grades to the needs of the individual members of the special classes.

Our teachers are volunteers from the ranks, who are paid \$100 per year additional. Many of them have taken courses at the Vineland Summer School, and, by observation, study, and experience, are growing to be skilled teachers in this particular

field. The fact remains, however, that but few teachers of these special classes are suitably prepared. If kindergartners need a two years' course of special training for their work, surely the teachers of exceptional children, where expert knowledge is required, need a course of special training of equal length. Any six weeks' course of special training is but a mere beginning.

In general then it may be affirmed that the movement for the education and training of exceptional children in the public schools, one group of which is the feeble-minded, is spreading throughout our cities. It is one of the best aspects of modern education. The submerged tenth is beginning to come to its own, a right that it has always had but one not fully recognized.

In view of the efforts and progress made, the success attained, and the light that has been shed on this problem, I beg leave to offer the following suggestions:

1. In every city there should be a recognition of existing conditions. Sub-normal children—variously known as backward, dull, feeble-minded, or of slow development—are with us. They can be found if the school authorities and medical fraternity will but open their eyes and look about them.

2. There should be established in each city a psychologic clinic, possibly in connection with the city hospital, under the control and direction of the Board of Education, for the purpose of examining and classifying all children deemed by the teachers and school physicians as somewhat peculiar, below normal, exceptionally dull. At this clinic the degree of mental deficiency should be determined by scientific methods; full and accurate records of school work, home conditions, and hereditary data should be obtained and filed; and a proper assignment of each case should be made, some to school, to particular phases of school work, and others should be remanded to state institutions as custodial cases.

3. Suitable classrooms in regular school buildings should be secured for these children, and suitable equipment provided.

4. The classes should be small, not more than 12 or 15 in a class, in order that these children may receive individual instruction.

5. Specially qualified teachers, who have a natural aptitude

for the work, should be selected—teachers who have infinite patience, tact, resourcefulness, intense human sympathy, an appreciation of effort, and unbounded faith in the young people entrusted to them—teachers who are students of the latest literature on the subject, which is abundant, and who make frequent visits to schools where instruction to exceptional children is given.

6. The management should be kind and sympathetic. Love, sympathy, and a cheerful attitude will lead these children—or any children for all that—far better than nagging, threatening, or punishments.

7. A suitable course of study should be provided—a course that gives emphasis to the essentials, that is flexible, and is adaptable to the needs of the individuals, a course that leads directly to some vocation.

8. The instruction should be personal and individual, and should give emphasis to physical and manual training, to nature study, excursions, and illustrative material. The much-talked of Montessori method is undoubtedly well worth a careful study by teachers of feeble-minded children.

9. In this work the skilled teacher and skilled physician should labor side by side. Many of these children have serious physical defects that should be remedied as soon as possible. The training should be corrective and curative, physical as well as intellectual.

10. And, if the school authorities do not do their duty towards these unfortunate children, if lack of funds or lack of interest is in the way, people of means and warm hearts should be appealed to to see that this work is done.

IV.

HOW FAR SHALL THE PUBLIC SCHOOL SYSTEM CARE FOR THE FEEBLE-MINDED?¹

By JAMES H. VAN SICKLE, Superintendent of Schools, Springfield, Mass.

The opinion is gaining ground that the care of the positively feeble-minded, like that of the insane, is a state function and not one for local communities. Few states have yet made adequate provision for the care of the feeble-minded, consequently for the present most cities and towns must do what they can independently till the state is ready to carry the full burden. The public is slow to realize the extent and gravity of the problem. One of the most competent authorities places the number of feeble-minded in any community at 3 to every 1000 of the general population. These are individuals who cannot sustain themselves in competitive industry. They remain children all their lives—children in intellect and will, though adults in stature and in instincts.

Boys of this class if left to themselves are likely to drift into criminality. Being too inefficient to secure steady employment, a life of criminality proves the path of least resistance for them and they soon come upon the state for support in our penal institutions. We know that large numbers of the inmates of our jails and prisons are mentally defective. At the expiration of their terms they are again thrown out upon the community no better able than before to sustain themselves honestly, and with even less will to do so. Out of prison as well as in prison they are a public charge.

The feeble-minded girl if unprotected is a still greater menace to the community. While there are feeble-minded children born into good families, such cases are sporadic. They amount to less than 20 per cent. of the whole number. Eighty per cent. of the feeble-minded are so by inheritance. To prevent the marriage of feeble-minded girls and to shield them from temptations to

¹ Read at the Conference on Conservation of School Children, Lehigh University, April 3, 1912.

which they are notoriously easy prey is obviously the duty of society as a plain matter of self-defense.

What can the schools do? The public school is one of our social institutions and as such it may justly be expected in work with the feeble-minded to do whatever its publicly provided facilities permit it to do without neglecting its other functions. Some of the things it can do in this direction are as necessary for the protection of the normal children as they are advantageous to the feeble-minded themselves. Each type needs instruction different from the other. The school can gather the feeble-minded into groups for special treatment and care, and it must do so much in the interest of normal children whose progress the sub-normal impede if retained in regular classes. Furthermore, since the obscene and indecent acts which teachers sometimes have to correct are almost invariably committed by mentally defective children, the school organization should see to it that normal boys and girls are protected as far as may be from association with those whose sense of decency is lacking.

While feeble-minded boys are within the usual compulsory attendance age, they are not a menace to school or society if taught in separate classes. It is when they are 14 to 16 years of age or over that they become a menace. The feeble-minded girl may become a menace several years earlier. The public school cannot, therefore, with safety retain feeble-minded children very long without a radical addition to present means for their care in the form of residential homes or colonies with farm, garden, shop and productive industry such as are now provided only by the state. There must be separate homes for boys and girls to which they should be legally committed for life. This would not, of course, be necessary where the feeble-minded boy or girl has a good home and reliable parental protection. It would, however, be necessary in a very large majority of the cases.

It has been suggested that if parents are unwilling to have their children transferred to such a colony after they have exhausted the resources of the special public school classes and have left school, that the feeble-minded may be guarded by teachers or probation officers who keep watch of them at their homes,

and upon any indication that they are going wrong or becoming in any way a menace to society, take immediate steps to have the state interfere and take such children to the colony home. Should society adopt this plan of self-protection, the school might properly be called upon to aid, since the teachers of the special classes are the only ones who know intimately the characteristics of the children in question. At any rate, it is manifestly important to have all sub-normal children, except idiots, attend school during their earlier years, if only for the purpose of being studied. Some thus studied prove to be only backward or slow in developing and may safely be returned to the regular classes after time and special help have coöperated toward improvement. Specialists expert in this work find it impossible to determine, except after long observation extending in many instances over several years, whether a child is feeble-minded or merely backward, hence, the special class in the public school serves its most useful purpose as a clinic in which suspected cases are slowly and carefully diagnosed. The mental condition of a child should, however, be determined as early as possible, certainly within the first two years of his attendance at school, lest habits of inattention too bad to be corrected be formed, and lest he become chronic in never accomplishing anything. These children are in special need of the inspiration of success. This they get in the special class where the tasks set are within the grasp of their feeble powers.

The teacher of the special class should be equipped not only with technical knowledge of mental defects, but with ability and willingness to enter into sympathetic and friendly relations with parents of feeble-minded children, gradually and gently acquainting them with the child's real condition and of the advantages which the state colony offers, and finally securing their consent to a transfer to the institution. The most delicate and individual work is required here, and the teacher who undertakes this service must be an exceptional person. One such in any single city, except perhaps in a dozen of the largest, would probably be sufficient, since other teachers with less scientific preparation could serve in auxiliary centers under the guidance

of the single expert. Teachers of regular classes should call the attention of the specialist to suspected cases. These specialists should observe in their rooms and advise for or against a transfer to the special class.

The school physicians and other physicians of the community and social agencies of various sorts should be drawn into coöperation so that each child may be put into as good physical condition as possible—his teeth mended, his defective eyesight aided by glasses if necessary, his body nourished by food and protected by clothing, either at public expense or by philanthropic endeavor. Hygiene, exercise and manual industry should be the prominent features of the schooling of these children. The ordinary curriculum should be in evidence only incidentally. The public school will render its greatest service in fitting these positively feeble-minded children, as far as may be, for self-support under close supervision in some of the simplest industries that can be carried on in colony homes, and in sifting the human material that it handles so that the various elements will reach their proper goal, this goal being life in society for the curable cases, life under protected conditions for the incurable.

Another service which the public school can perform is that of acquainting the public with the gravity of the situation and the need of greatly increased facilities for dealing with the growing menace of the feeble-minded. To this end it is important that permanent records be kept which will afford cumulative evidence of a convincing character. Such records have been kept in Springfield. During the past six years, thirteen pupils have gone from the class to the state institution at Waverly, sixteen have regained their places in the school grades, three have entered parochial schools, eleven have moved away, and eighteen are regularly employed. Twenty-nine have had physical defects remedied.

In the words of Dr. Fernald, of Waverly, Mass., from whom I quote:

The one great deduction from sixty years' experience in the education of the feeble-minded is that under the best conditions only a very small proportion even of the higher grade cases become desirable members of the community. They need protection and care, and the family and community

should be protected from their certain tendency to drift into pauperism, prostitution and crime.

It should be remembered that under the most favorable conditions hitherto, a very large proportion of feeble-minded persons, even of the higher grades, eventually become public charges in one way or another. No one familiar with the physical and mental limitations of this class can believe that any plan of education will ever materially modify this fact. Any relief as to public support to be obtained from public school training can be only temporary. Feeble-minded children may be tolerated in the community, but it is a great responsibility to inaugurate any plan on a large scale which does not withdraw from the community the defective adults. The feeble-minded are powerless to resist the physical temptations of adult life and should be protected from their own weakness.

V.

HOW FAR SHALL THE PUBLIC SCHOOL SYSTEM CARE FOR THE FEEBLE-MINDED?¹

By E. BOSWORTH MCCREADY, M.D., Medical Director, Hospital-School for Backward Children, Pittsburgh, Pa.

Upon the elimination of the various classes of defectives from the competition of every-day life depends the solution of many of the problems confronting the sociologist of the present day. There is no class of defectives who exert a more baleful influence upon the social body than the feeble-minded. Harmful though this influence is, the feeble-minded individual is so, through no fault of his own, and is as much entitled to our commiseration and care as any other unfortunate. Since the pioneer labors of Pèrèire, Itard and Seguin, the question of the education of the feeble-minded has assumed a very great importance, which has increased with the growth of our public school systems and the adoption of compulsory education laws. The feeble-minded child is as much entitled to the education suited to his needs as is the normal child. Though his limited faculties will never, under any system of education or training, enable him to exercise the amount of judgment and discrimination necessary in even the ordinary affairs of life, yet it is surprising the high degree of efficiency which some will attain in certain directions under proper supervision. It is only through congenial occupation whatever that occupation may be, usually along manual rather than scholastic lines, that the feeble-minded child may be led to his fullest development and at the same time be given his maximum of happiness.

The period between the ages of six and fourteen is the most important in the life of the feeble-minded child. It is during this period that he is able to make the best use of the special training which he requires. For this reason early recognition of his condition is necessary. Feeble-mindedness is often not suspected until the child by his inability to advance in school

¹ Read at the Conference on Conservation of School Children, Lehigh University, April 3, 1912.

gives evidence of his condition. Parents very often either cannot or will not see that their child is any different from other children. Sometimes they fail to bring to the attention of the family physician the apparent abnormalities of the child, but the family physician himself is very often at fault in this matter as he is very likely to lightly dismiss the subject with the remark that the child will outgrow his difficulty or that there will be a change at three years or at seven or at fourteen. In this way valuable time is lost which might be put to good advantage. It therefore devolves upon those who come into contact with the child in his early school days to recognize the importance of the situation and to take steps to remedy it.

The question of the responsibility of the public school to the feeble-minded child should be considered in relation:

1. To the child himself.
2. To his fellow pupils.
3. To society in general.

In the ordinary class-room the feeble-minded child gains but little of value. It is true that some, in whom memory is well developed, will advance, but they gain practically nothing except the ability to repeat, parrot-fashion, dates, rules and formulae, understanding but little of their real meaning. Lacking primarily in the power of attention and unable to concentrate for but a short length of time the long school periods become irksome, and they soon become fatigued and restless. The feeble-minded child is suggestible to a marked degree. He consequently learns easily evil habits which in his more normally poised school-mate are little more than incidental phases of development without permanent damage, but in him tend to aggravation of his condition. He also is liable to become the scapegoat for escapades of his companions and to be led even into law-breaking without any realization of the gravity of his offense. I have at the request of probation officers of the Juvenile Court examined a large number of boys who have been arrested on charges of theft and other crimes who were entirely incapable not only of understanding the gravity of their offense but of originating the plans by which the crime was carried out. In the majority of cases the real

culprits escaped. The feeble-minded girl is doubly in danger. How great her danger is, the records of any Juvenile Court will show. It is unfortunate that these girls are very often attractive in appearance and manner, and while their tendencies may not necessarily be immoral, their power of resistance is very slight indeed. It has been shown that a large proportion of girls leading immoral lives are feeble-minded.

Mal-nutrition and a lack of bodily tone, with lessened resistance to disease is practically the rule in the mentally deficient. It has been noticed that whenever there is an outbreak of any of the acute infectious diseases in a school that the feeble-minded are always the first to succumb. On account of limited opportunities for contact with other children and unusual solicitude on the part of the parents the feeble-minded child is often remarkably free from diseases until he begins to attend school, when he contracts one illness after another. The tendency to the development of tuberculosis is marked. In fact, this disease is the greatest cause of mortality.

In the special or ungraded classes which are now a part of the school system in nearly all of our large cities the feeble-minded child may and usually does progress up to a certain point. I am firmly of the opinion, however, that the feeble-minded child should be allowed to remain in the special class only a sufficient length of time for his condition to be accurately diagnosed, or until a place can be found for him in a suitable institution. The partially educated imbecile is a far greater source of danger than the uneducated. To the casual observer he presents every appearance of normality, consequently the same is expected of him as of the normal individual. If given a position when he leaves school, he soon shows his incapacity, and is discharged only to repeat the process until either having gone the round of available employments or given up the battle, he joins the army of the unemployed and becomes either dependent or delinquent.

In New York City "of fifty children formerly in the ungraded classes, chosen at random from many cases which have been followed up, there are two who are doing work more or less steadily. The others have been in constant difficulty in one way or another

since leaving school, are known to be immoral, have been arrested, have been in institutions and withdrawn, are known to be the means of corruption of other children with whom they come in contact, or are known to have incendiary tendencies."¹

Of what advantage, except to the normal children and the teachers of the normal children, has it been to attempt to educate these in the special classes of the public school? They are no more fitted to participate in the world's work, than they were before, they are more dangerous to their fellows, less happy, their evil tendencies greater, their powers of resistance less. They have lost valuable years during which they have added their quota of misery and debt, to increase as each year goes on, and to no purpose.

The influence of the feeble-minded child upon the other children in the class is bad. One such case can upset the discipline and impede the progress of an entire class. All children are highly imitative and from amusement at grimaces and grotesque actions they soon come to imitate them. The moral obliquities of the feeble-minded are also a source of contamination to the other children. To include the feeble-minded in special classes with those who are only backward is an injustice to the latter. The backward child is capable of more or less rapid advancement to normal under suitable conditions and when given the advantage of proper individual attention. It is impossible for the teacher to give this attention when her time is taken up with the feeble-minded.

I have already alluded to the increased susceptibility to the acute infectious diseases and to tuberculosis. For this reason the feeble-minded child may become at any time a dangerous source of infection.

I believe there is no one at this date, who will question the advisability of segregation for the feeble-minded of all grades. It is only in a suitable institution that the feeble-minded individual may lead the wholesome, contented and often useful existence to which he as a human being is entitled.

The feeble-minded individual at liberty is almost always a

¹ "Feeble-minded as City Dwellers," Eleanor Hope Johnson, *The Survey*, March 2, 1912.

burden and often a menace to society. If it were possible to figure up the number of murders, sexual crimes, incendiarisms, and thefts committed by this class of persons, the result would be appalling. The only remedy is segregation. "Feeble-minded children and feeble-minded men are roaming about the streets to-day as free agents. Parents are not compelled by law to put a feeble-minded child in custody, yet that feeble-minded child unsuspected as such, amiable, care-free as he frequently is, is potentially a criminal and at any moment may commit a crime. That child is permitted to grow up without restraint, except such as parents exercise, and this has no effect whatever in these cases. The child is allowed to marry and bring forth children of his own kind, more feeble-minded, more dangerous. There is no system designed to pick out from the community persons so affected, and no law whatever to prevent their untrammelled movements."¹ Our institutions are totally inadequate to provide for more than a small proportion of those requiring their care. It is true that to erect sufficient institutions to adequately provide for the immense number of feeble-minded would be a severe tax upon the public purse. But the expense would soon prove to be a matter of economy. Quoting from a recent editorial in *The Survey*: "the feeble-mindedness which fills the almshouses to overflowing, recruits the jails and prisons, clogs the reformatories, furnishes victims to the white slave traffickers, and intermingles unhindered with healthy strains to gain a new vitality and to extend its blight to hitherto untainted families—this feeble-mindedness which is obvious, obtruding itself whether we like it or not upon public notice, laughing to scorn our penny wisdom by imposing its pounds sterling of foolishness on every taxpayer, this surplus feeble-mindedness, we must drain off as the true human conservationists are showing us how to drain it, by providing adequately for all who will voluntarily accept custodial care, and for those who are dangerous to their neighbors, even though it means compulsion."² I would go a step further than this and recommend compulsory custodial care, or perhaps

¹ *The Survey*, March 2, 1912.

² "Feeble-minded Boys and Crime," Max G. Schlapt, M.D., *The Survey*, March 2, 1912.

in some exceptional cases official supervision of all individuals known to be feeble-minded. What segregation can accomplish in the course of a comparatively few years has been demonstrated in Aosta in Northern Italy where the cretins who formerly abounded were segregated in 1890. By 1910 only a single cretin of sixty years and three demi-cretins remained.¹

Conclusions:

1. The public school is not the proper place for the education of the feeble-minded.
2. Careful examination should be made by competent investigators of all children when first they apply for admission to the public school.
3. Those found to be feeble-minded should be excluded and segregated in institutions.
4. Doubtful cases and those backward in their development should, after the correction of physical defects, faulty environmental conditions etc., be admitted to special classes where they will receive the training suitable to their individual needs, and be under the observation of physicians especially trained in this sort of work

DISCUSSION.

Dr. Wm. G. Schauffler, Lakewood, N. J.:

Mr. President, ladies and gentlemen, it is rather a difficult subject to try to discuss three such papers. Usually one paper is all that one man can digest, and talk about. The three papers which we have just heard deal almost exclusively with the actually feeble-minded children. I thought a discussion of backward children would have been included. I think there can be no question at all of the conclusions reached by the authors as to the actual feeble-minded children in our communities, and their need of segregation. That they do better in their own physical lives under such conditions there can be no doubt. We cannot hope to do much for their mental condition. By their segregation, the menace to the community is done away with. There are conditions, however, that make it impossible to carry out the conditions that the readers of these papers have laid down. In the first place none of the gentlemen have spoken of the parents. The parents of feeble-minded and backward children, in their own eyes, at least, have just as much right to say what shall be done with these children as the physician or educator. Parents have rights whether they are ignorant or otherwise,

¹ "Heredity in Relation to Evpen," Daugenicsort, p. 259.

and the state cannot go into the home and say that the child is on the border line and must go to an institution, and—if we would go by what some have said—stay in an institution all their lives in order to avoid being a menace to the community. We are not ready for that yet. The question before us is, what can the state do under the existing circumstances? We have heard what cities can do, and while cities form a large part of the state and control the education of a large proportion of the children, yet there are the rural districts that we must take into consideration, and to my mind, the danger in the rural districts is almost as great if not greater than that in the cities. The cities have highly organized facilities for correcting the evils; in the rural districts this does not prevail. In some rural districts it is even hard to find a medical inspector. How then can these children be examined? In New Jersey in the rural districts we are finding it extremely difficult to take up medical inspection. We have a compulsory medical inspection law which makes it obligatory that every school district shall appoint a medical inspector. This has been in existence for three years and I happen to be at the head of our Board of Education, but we cannot yet enforce it in all our rural districts simply because we have not doctors enough to take up the work. That being so, what are we going to do? To my mind, the first thing is to find out who these children are, and then do the best we can under the circumstances. A year ago a law was enacted in New Jersey making it obligatory on the State Board of Education to make a census of backward children throughout the grades of our public schools and to provide these backward children with proper training. We have been nine months at work. As yet we have not found it possible outside of the large cities to do much in that line. Jersey City and Newark have special classes but in the rural districts it is as yet impossible to have them. We are just perfecting a system which we hope will do something. I am glad to give an outline of our plan for your help and criticism. In the first place we have had to determine in a very general way who are the backward children. Our law reads that children three years behind the normal must be provided for in special classes not to exceed fifteen. When there are ten or more such children in a district it shall be necessary to provide a special class with a special teacher for them. A card system has been prepared. Cards are in the hands of the teachers which show the whole number of children in the school and the number of years they have been in attendance. The system works out in a step-like arrangement and it can be seen at a glance how many children have been in one class more than three years. These reports are sent to the supervising principal, county superintendents, etc. The children found to have been more than three years in one grade are examined and the feeble-minded, merely backward, and the physically disabled are looked after separately. We have asked for coöperation on the part of Drs. Johnstone and Goddard. We have only one institution for the feeble-minded in New Jersey, and only one for the epileptic and these are overflowing all the time. Therefore we are much in need of means for providing for all these unfortunate children.

Miss Eleanor Johnson, New York City:

I think Dr. McCready has suggested something that looks like the millenium to most of us—an ideal condition which is far in the future. These children are all around us and the public schools have room for them, as has been shown. There is no more room in existing institutions and if there were there is no way of compelling parents, who more often than not are unwilling, to send them there. When the children are in school, the parents at least know where they are. There is one statement I should like to question; it is concerning the danger that results from teaching such children. The teaching that is given is, as should be, largely manual training. Feeble-minded children are less troublesome and happier when occupied. They are taught how to draw, how to use their hands, and as a result they are more apt to be occupied when at home and so less likely to get into trouble. I know of one boy, a high-grade imbecile, who has become quite expert in carpenter work. He never can support himself without constant supervision, because he is too subnormal to deal with commercial conditions, but he is perfectly happy in doing this wood work and can be made extremely useful. Until we can get proper institutions and enough room for these children, we must do something for them in the schools. The social service side of the public school work is very valuable just as it is in the hospitals. Let us have social workers as a part of the school staff. Much good can be done by their visits to the homes of the children, where they may teach the parents how best to care for mentally defective children. The only way at present by which we can hope to place children where they belong, is to get the parent's good-will. The social worker can often do that by repeated visits which the teacher has no time to make. The social worker can also follow up these children after they leave school and find out ways in which the school training may be made of more value to the sub-normal child. A better knowledge of the numbers of such children and their conditions can also be arrived at. In this way we shall more nearly solve the problem as it exists.

Dr. L. L. Button, Rochester:

One point not yet discussed is the great advantage accruing to the normal child when his grade is relieved of the influence of sub-normal child. The sub-normal child does hinder the advance of the whole grade. Then too the teacher has not been mentioned. She tries hard to bring the sub-normal child up to the standard. This is not possible and the whole grade is affected. It seems to me that a very great advantage that we have in the use of the public school classes for educating these children is that we can also use them as a clearing house in the getting of children of this type placed in institutions. It is true that the teachers in these classes get a better hold on the parents than one realizes until he has done this work. They gain the confidence

of the parents, and their advice that this child should be put into an institution will be more readily accepted than that of any one else. In most cases where these classes are maintained they have medical inspectors who try to have removed as far as possible all the physical handicaps of the children. There is something that I would like to see brought about in connection with their work and that is a supervision of these sub-normal children when they go out into the world. I think there should be some kind of official control of their conduct and life for their protection. They are not able to control themselves well and they generally do not have good parental control. If something like this were brought about their lives would be more useful and more happy. Too often they are simply the tools of unscrupulous persons.

It also seems to me that the time must come when a child by reason of his mental deficiency cannot be supported by the family and is for this reason put under the care of the charity board; or in cases where the child has done some criminal act and the state has to interfere either to aid or correct, then it seems to me the state ought to have the right to interfere in the matter of segregation or asexualization for the benefit of the community at large.

Dr. Groszmann:

I would like to call attention to the fact that the discussion of this subject is being obscured by the confusion of terms, as Dr. Cornell has said. Dr. Cornell has been using the terms "dull" and "backward" in a way that perhaps others would not use them, but according to his own individual method. Again he thought it desirable to make distinctions among the children who are backward, but not defective. Dr. Edson has also confused terms. He has been using the terms "feeble-minded," "a degree of dulness," "a little sub-normal," etc., somewhat interchangeably. I am really not quite sure what kind of children he had in mind. All this shows that the various workers in this field have been using terminologies and classifications of their own, and there has not been yet an agreement upon terms and classifications. I do not consider it a presumption on my part to call attention to a classification which I presented in 1909 at a meeting of this Academy in Atlantic City. The subject was well discussed at that time and we tried to agree upon a classification and terminology upon which we could base our discussions. Otherwise we shall never understand each other.

Regarding what Miss Johnson has said in criticism of Dr. McCready's paper, I should like to say that these ideals have to be expressed. What we have to do in order to gradually bring them into existence is another matter. I can assure you and encourage you by saying that a number of the things which I suggested ten or twelve years ago, and which were considered impossible then, have been demonstrated to be practicable in the public school systems of many cities to-day.

Dr. H. M. Bracken, St. Paul, Minn.:

I have heard the terms feeble-minded and backward used in such a promiscuous way this afternoon that I feel constrained to say a word. We should consider feeble-minded and backward children in the same group; and the term sub-normal is unsatisfactory. We can divide defective children into two groups: physically defective and mentally defective. The physically defective will include the deaf and dumb, the deaf, the blind, those with imperfect vision, and those low in physical condition, as in tuberculosis and the anemic. What you should do with these children, so far as the public school is concerned, is an open question. You may provide for them in special classes; for some in graded or ungraded classes. We may divide the mentally defective into four groups: the idiot, the imbecile, the moron, and the dull. You may go further and include the epileptic. Now the epileptic, the idiot, and the imbecile should all be cared for in institutions as I understand it. The moron is an uncertain quantity and there should be a clearing house for such. He may be cared for in the public school under certain conditions. Medical inspection will help greatly in finding the place for the moron. The dull child may be classified as belonging to the backward and he can very properly be cared for in the public school under proper conditions. The laws of New Jersey have been referred to and the backward child grouped among those who have been in the grade three years or more behind the normal. This may include children who are backward because of defective sight or hearing in whom such defect has not been discovered. It is not fair to consider such children as mentally deficient. We should be very careful to group children properly.

Dr. J. E. Tuckerman, Cleveland:

I think the last speaker did not understand that Dr. Groszmann's classification was a tentative one, for the purpose of getting a line on those children who are not making the progress they should in their studies.

Miss Johnson:

I think my remark concerning the millenium was not understood. It was not made in criticism of Dr. McCready's paper. I think he has outlined something in which we all very much believe, and which we would be delighted to see brought about, but there seems to be immediate things which have to be attended to now.

Dr. Edson, closing:

I wish to say in reference to the attitude of parents *in re* the education of children of low mentality, that in our city parents invariably prefer the public schools to private or state institutions, as thereby they are assured of suitable instruction. Many parents insist upon the attendance of children

at the public schools even when they ought not to be there. It is a difficult matter sometimes to keep children away from the public schools, when it is clearly evident that they ought to go to institutions.

In regard to terminology, I agree that in speaking of mental defectives we should make a clear distinction between those children capable of intellectual advance and those not. In the case of the latter their place is not in the public schools; the public schools ought not to be burdened with them. When children are capable of improvement, they are more likely to be able to make a livelihood later on if educated and trained, especially in manual and physical lines, than if not. That they may be more of a menace if educated than if ignorant ought not to deter us from giving the proper training. They should be given as much education as they are capable of receiving, physical, intellectual, manual, and moral. To be sure we have a number of children in our city schools not capable of intellectual improvement, because of the fact that as yet there is no other place to send them. We often have requests from the parents not to refuse admission of their children in the schools. I have in mind one child who has been in the schools for a number of years and receives no benefit, but in this school we have plenty of room and therefore allow her to remain.

I think the harm to normal children in associating with children of low mentality need not be serious, provided the deficient children are in a room by themselves and under close supervision. We have two people, an inspector and a physician, who are giving their time exclusively to examining these children and in classifying them in a tentative way in the public schools. We have made a good beginning. We have had these classes for eight or ten years. We feel that it is a work thrust upon us. These mental defectives ought to be followed up after they leave school, lest they be led astray. A large proportion of those who come to us receive some considerable benefit. This statement cannot be challenged.

Dr. Cornell, closing:

There are two points to which I want to refer: (1) That when the proper kind of institution is secured for these children the problem will be largely solved. Provision should be made against crowding together the high-grade feeble-minded with the idiots. (2) We have heard so much of medical inspectors not being properly trained that I want to call attention to a ten-day course of instruction at Vineland for physicians taking up the work required of medical inspectors.

Dr. McCready, closing:

I am very much in favor of the special class, but I do think, and very strongly think, that the special class for the feeble-minded is simply a compromise. Parents of feeble-minded children would of course prefer to have their children entered in the special class. It would then appear that they

are backward and for that reason are receiving some special attention. There would be attached no suggestion of feeble-mindedness. While it is not dangerous to the imbecile himself to be educated I regard the education of the feeble-minded anywhere but in the institution as another compromise. He is sent out into the world and to the ordinary observer appears to be normal, because most people do not think or know about these subjects. They think if persons can read and write and talk sensibly at times that they cannot be feeble-minded, yet we may have a feeble-minded child go through all the grades and come out feeble-minded, slipping through his examinations. So long as we have the compromise of the special class we shall not get appropriations and we shall continue to have the problem of degeneracy, crime, etc., to confront us. We should examine each child as he comes into the school and take steps to segregate him. In this way the problem will be solved in the course of a few years.

VI.

STERILIZATION AND SEGREGATION.¹

By HENRY H. GODDARD, Ph.D., Director Department of Research, The Vineland Training School for Feeble-minded Children, Vineland, N. J.

Many persons ask how does it happen that the feeble-minded child has so suddenly come into prominence? Has he so suddenly increased in numbers as to become a social menace or is it merely a fad of a few enthusiasts, who have become over-excited on the question? The answer is easy. The feeble-minded person we have had always, but under the former régime, the problem largely took care of itself because the feeble-minded person being neglected, the law of the survival of the fittest eliminated large numbers of them. But in the last half century, we have come to extend our humanity and feelings to these defectives. We have established institutions and schools for their care and training.

Secondly, the compulsory education laws have brought these children to our attention by bringing them into the public schools.

Our attention once turned to them, we have begun to investigate the situation and have quickly found certain startling facts.

First, we have recognized that a great many children whom we had formerly thought to be wilfully bad are actually mentally deficient and unable to do well—to do differently than they do.

Secondly, there has been discovered some remarkable methods of testing the intelligence of children and showing us that many of them are below par. The results of these investigations have shown that at least 2 per cent. of the children in our public schools are mentally defective and incapable of taking their place in society. To show what this means, one has only to take an example. Applying this ratio to New York City, we would find that there are 15,000 feeble-minded children in the public schools of that city and this figure has been amply verified by other means and by observation. Furthermore a careful study into the causes

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of feeble-mindedness has shown that it is very largely hereditary, at least two-thirds of the cases being the children of feeble-minded parents or grandparents or both.

Still again the Royal Commission of England, studying the problem for four years, discovered that these people were increasing at twice the rate of the general population. It requires only a little thought on these facts to realize that we have before us not only a very serious problem but one which underlies many other social problems of the day. When we realize that a large percentage of our criminals, paupers, prostitutes, drunkards and ne'er-do-wells are mentally defective, we can but ask ourselves the question: What can be done to prevent all this?

The attempt to answer this question has led to two propositions: The first is to colonize them. Determine the fact of their defectiveness as early as possible and place them in colonies under the care and management of intelligent people who understand the problem; train them, make them happy, make them as useful as possible, but above all, bring them up with good habits and keep them from ever marrying or becoming parents. The other solution that has been offered has been to render them sexually sterile by surgical interference.

These two methods each have their advocates and their opponents. As usual the solution to a problem so vast is not altogether simple and the methods proposed for the solution are not easy of application.

Colonization appears to be the ideal method. Under the compulsory education law, all children now come to public attention when they enter school. Placed in colonies which are in reality well regulated communities where these people do all the work that they are capable of doing and live under conditions that are easy for them because simplified by the persons of intelligence who manage the colony, these children become happy and harmless. A great many of them are trainable to do many things with their hands. They can carry on much of the work of the colony and become partially self-supporting or even completely self-supporting under direction. This is more than they could ever do if free in the world and besides they are thus kept from

propagating their kind—a result that cannot be attained if they are left in their native community. It is ideal and it looks easy. But we have only to consider a definite case to realize the difficulty.

Our 15,000 feeble-minded children in the public schools of New York City would require from eighty to thirty institutions, depending upon the number placed in each. The custom in many states is to have large institutions of from a thousand to two thousand inmates. With the larger number we would require eight such colonies for New York City alone. Many people believe that five hundred is enough for any one superintendent to have charge of. At this rate, we should require thirty institutions or colonies. New York City now has one. The whole state of New York has four. None of these has sufficient money or equipment and it is with great difficulty that they can be maintained even as they are, the public being unwilling to raise sufficient money to carry them on as they should be. We feel then at once the difficulty of providing enough of these colonies to take care of all the defective children. As is often true, however, the difficulty is not really as great as it appears. It would only be necessary to show as it sometime will be shown and appreciated by the people that the increased cost will be largely offset by the saving. We are not only planning for the future of these children, but the moment we begin to care for them, we shall reduce our expense for courts and prisons and almshouses, save the social losses that come from fires and injuries committed by these people, the moral injuries that come from their example and the prevalence of so much crime committed by them. Nevertheless it will take time to make this clear to all of our people.

But this is not the greatest difficulty that we have to face in this matter of attempting to colonize all of the mental defectives. A greater difficulty lies in getting these children into the colonies. The majority, indeed, the dangerous part of them are not idiots technically so-called, that is to say they are not of so low intelligence that every one, the parents included, is convinced of their defect and is willing to have them placed in separate colonies. On the contrary, many of them are what are known

technically as morons or very high-grade defectives, who often-times do not show to the satisfaction of the parents that they are defective until they are adults in years and attempt to take their places in the world. The consequence of this is that the parents are altogether unwilling to have their children placed in these colonies.

This comes from two causes: First, because of their parental love for their children, they are unwilling to send them away from home. Secondly, many of them are trainable to do errands and simple work which brings in a few pennies to the family treasury and this in many of these families is an important item. Until we come to the point where society is driven to the extreme of making laws requiring the forcible taking away of these children from their homes and placing them in the colonies, this matter will be an insurmountable difficulty. Many even of those who are allowed to go to the institution when they are young, where they become trained to a certain amount of useful work, are then taken home by their parents because that very training becomes an asset. So that at present, we are not able to keep in the institutions even those that we get there. So much for the colonization plan.

The advocates of sterilization, on the other hand, claim that they have a simple, safe and easy solution to the problem. They say to us that barring the danger of procreation, this element in the community will be no worse, or not greatly worse, in the coming generation than they have been in the past and while we will suffer some consequences of their condition, we can endure it for another generation if we are reasonably certain that it will then largely cease. Therefore, it becomes only necessary to render these people sexually sterile to solve the problem.

It is easy to point to a feeble-minded man that lived six generations ago who has become the ancestor of one hundred and forty-three known defectives and say "had he been sterilized this would have all been saved."

Again, the plan is easy and appeals to us as reasonable and conclusive but the practical application of it is fraught with difficulty. In the first place, for its wholesale application, the

plan would involve going into the homes, declaring that such and such children are feeble-minded and liable to reproduce their condition and therefore must be sterilized. Up to date it has been very difficult to persuade the people of eight states to pass laws authorizing the sterilization of a limited number of assuredly incurable cases in a few institutions. How long it will take for us to get to the point where we will legalize the process of going into the families and sterilizing such of their members as may be declared feeble-minded, the reader is left to guess for himself. Before such laws will ever be passed, a vast amount of work must be done and many subsidiary problems solved. For example, we must discover some method of accurately determining what children are mentally defective. No one is willing to authorize the sterilization of a child as long as there is the possibility that he may turn out normal. That means that a large number of those who are really most dangerous to society would escape on the basis of the existent doubt. Secondly, we must be assured that in proceeding to apply this remedy, we are not jumping out of the frying pan into the fire, that in thus providing by our surgical interference that these people shall not propagate their kind, we are not putting into the community people who will be a social and moral menace, much more serious to us than their actual feeble-mindedness. In other words, what will be the effect upon the social evil, and upon the spread of venereal disease of thus having in practically every community, some persons who are known to be free from the liability of having children? Will the relief from this fear lead lewd women, and men, of normal mentality to seek out these people with whom they can satisfy their passions without fear of consequences and in so doing, spread disease and debauchery broadcast?

In the writer's opinion, this danger is largely overestimated, but this is only an opinion and we must have facts. The danger from disease could be largely if not entirely overcome by proper and efficient medical inspection. The increase of sexual immorality would probably not be great since it is the testimony of most social workers and people familiar with this class of society that the fear of children is not a great deterrent.

We have been considering the wide and general application of this measure to all mental defectives who can be found, but, as has been said, the course that the matter is taking now, is to allow this operation to be performed on certain selected cases in certain specified institutions. Let us see the possibilities of this. In the first place, the operation which is generally proposed, of vasectomy, seems to have no bad effect physically or mentally; indeed, good effects are claimed for it.

A careful study of this whole matter is being made by a Committee of the American Breeders' Association and we shall doubtless have some valuable facts on this matter in the near future.

Practically the matter seems to stand as follows: Of the eight states having the law, only one has ever applied it; and even in that one case, the operation is at present abandoned at the suggestion of the governor on the ground that it is probably unconstitutional. The strongest argument against the constitutionality of the law is that it is a "cruel and unusual punishment." The idea of punishment comes into the question because the laws include among other persons who may be operated upon, the inmates of our jails, prisons and reformatories, that is to say, such of them as are considered incurably criminal. In the writer's opinion, it is a serious mistake that the question of criminality is brought into the matter at all. There is no agreement among criminologists that criminality is hereditary. Indeed, that theory is fast losing ground. Criminality is not born, it is made. The easiest material out of which to make criminals is feeble-mindedness. Therefore, if we could make our law apply to the feeble-minded and say nothing about the criminal, we would get, under that head, probably all of the criminals that need to be considered; and furthermore, if the term criminal could be left out of the laws, the idea of the operation being a punishment would entirely disappear.

Returning then to those institutions and those cases where the laws can properly be applied, we have the following situation. If the individuals that are selected for the operation are never to go out into the world, the operation will be of no very great benefit to society. It will remove a little of the necessary pre-

caution in the institutions. That is of doubtful advantage. But it is true that many institutions for the feeble-minded have inmates who could go to their homes and be well cared for, their lack of ability to earn a living would be made up by others in the family and the state would be relieved of the burden. If they were safe from the danger of procreation, this would be a proper procedure. It is also true that our institutions for the insane are so crowded that many cases that are known to be chronic and incurable and are clearly hereditary, are often allowed to go home during their periods of quietness and while away from the institution, they become parents of children who inherit their weakness. If the operation were applied to these people, it would save a large percentage of defective inheritance. In the institutions for the feeble-minded, if these people above alluded to could be sent home, others could take their places, could be trained to work, sterilized and again sent to their homes to be fairly comfortable in those homes. In this way, in the course of time, considerable help could be offered to the solution of this problem and the burden of caring for so many people for their entire lives in colonies would be, to a certain extent, reduced.

We thus see that in the present status of the problem, neither one of these plans will solve it at once, but since both are good and both can contribute somewhat to the solution, the only logical conclusion is that we must use both methods to the fullest extent possible. As we have attempted briefly to show, and as any one can discover for himself if he will give a little time to investigating the conditions, the situation is fast becoming intolerable and we must seize upon every method that is suggested and offers any probability of helping in the solution of the problem. In other words, it is not a question of segregation *or* sterilization, but segregation *and* sterilization.

DISCUSSION.

Dr. Alexander Marcy, Jr., Riverton, N. J.:

Those of us who are familiar with the careful and painstaking work of Dr. Goddard will be willing to accept his conclusions as final, and personally I am inclined to agree with all that he has said. The question of how best to

deal with this great problem of the defective classes, is almost unanswerable. From the data obtained as a result of careful investigations made by Dr. Goddard, Prof. Johnston and others, we are convinced of the certainty of the transmission of mental defects from parent to child and the greater the defect in the parent, the greater the deficiency in the offspring. This is true when one parent is a defective and more certainly true when both parents deviate at all from the normal. This being so positively certain, it only remains for us to consider how we can best deal with such cases, and how we can hope to overcome conditions which, if allowed to go on unchecked, must eventually overwhelm society.

The question as to what we must do is comparatively simple but how it can be done is much more complex.

We must prevent procreation, or the reproduction of their kind, but how we can best accomplish this is what confounds us. Sterilization is all very well, and if it were possible to sterilize effectively every defective, this solution would be easy, but this is quite impractical for many reasons.

There are many who disapprove of such a procedure on moral grounds, believing that we have no right to deprive an individual of a natural and God-given power for such a purpose.

They forget that when God made man and breathed into him the breath of life, He made him perfect, in His own image, and that this poor, miserable apology for a human being is a result of man's own transgressions, and that his Creator cannot look with favor on any such travesty of His handiwork. He undoubtedly looks upon him with pity, but He surely cannot regard His reproduction with anything but disapproval.

There are others who oppose it on legal grounds, claiming that the Constitution of our various states, as well as of the United States, does not grant the right by which we can exercise any such power, and therefore all acts which provide for the sterilization of certain defectives or criminals are unconstitutional.

Whether this is true or not, we do not know, but it will be determined very shortly by the courts of last resort in some of our states, notably in New Jersey. Our law was passed about a year ago and up to the present time no operations have been performed under it.

Our institutions are full of subjects suitable for such an operation but owing to the uncertainty of a legal right to perform them we have concluded to ask our Court of Errors and Appeals to decide the question.

There are certain classes of cases that must be sterilized. The sexual perverts, masturbators, etc., and a certain class of criminals should be, *e. g.*, rapists, and dangerous and incorrigible imbeciles. There are many of these in our correctional and reformatory institutions and they are hard cases to control. Dr. Sharp has observed in many of the cases operated on by him a wonderful change in behavior after both vasectomy and castration, the subjects becoming more docile and being much easier to control. In such

cases however the question of our right to perform these operations is more likely to be called in question, as it partakes of a correctional measure, or by some might be considered a cruel and unusual punishment. Moreover in case of criminals it might be construed as an additional punishment, and therefore illegal unless the court at the time of sentencing the prisoner should include this as a part of the sentence.

Surely in these cases in order that the punishment might fit the crime castration should be a necessary part of the sentence. The question of segregation may be unobjectional from a legal standpoint, but there are many other sides to this proposition.

The greatest objection perhaps would be the financial one. To segregate properly and effectively all defectives would impose a burden on the taxpayer that would be almost, if not quite unbearable, and yet, as Dr. Goddard has pointed out, it might be economy on the part of our communities in the end to issue bonds to build and equip enough institutions to care for all defectives, as by so doing, in a few generations, this class of dependents would practically be eliminated, that is in so far as the hereditary transmission of defect goes.

Aside from the financial burden, it would be a difficult matter to get all defectives into such institutions, and whether or not it is within the province of the state to pass compulsory laws that would cover this phase of the question, I do not know.

What would be the standard of mentality that would decide who should be put in such an institution and how would it be determined?

These are all grave problems and are not easy of solution, but the fact remains that something must be done, some concerted action must be undertaken to relieve society of the rapidly increasing burden of our defective classes, and I believe Dr. Goddard is entirely right when he says that it is not a question of sterilization or segregation, but one of sterilization and segregation.

Proper and efficient marriage license laws which will prohibit the unfit and the unhealthy from marrying will help in the solution and it is to be hoped that every state will soon have a uniform and comprehensive statute that will effectively deal with the problem from this view point.

Dr. H. M. Carey, Spring City, Pa.:

I am thoroughly convinced that something must be done to overcome this great problem staring us in the face. Segregation is all right if carried out in detail, but to be effective the law must be mandatory. It must enable us to get every single case of deficiency, feeble-mindedness and epilepsy into the proper institution and under the proper custodial care. If we are going to eliminate this scourge, as it has been called, it must be done thoroughly. A law was introduced in one of the western states which, I think, dealt very conclusively with the subject. Unfortunately it was about fifty years be-

fore its time. This law distinctly stated that every single case of mental deficiency must be reported, just as the law requires small-pox to be reported. The person was admitted to an institution for examination. At the end of six months the medical authorities of the institution reported as to the condition of the case—whether recovery was probable, whether special training was needed. Then it was the object of the law to have that case committed to the institution for life with this understanding: That if the parent of the child wished to remove the child from the institution it could be done only after an operation which would prevent procreation. This was meant to overcome the objections to both sides. The individual for whom operation was not desired, had the opportunity of segregation. If segregation was not desirable, there was opportunity to have done the operation which would allow him to be taken home. As I have said the law was fifty years before its time. There is hope, however, that other states will take up the same question. I understand that we are about to have a bureau dealing with this subject, and it may be possible to take up this problem at headquarters. State Legislatures and the National Government should be shown that something must be done. The court has very little authority to commit an individual unless crime has been done. We have cases come to us in which the parties should not be allowed to be free, yet in every case, upon the demand of the parents, they must be released, and they are turned out as a menace to the community. It behooves us all to do our best to bring about correcting influences.

Dr. Jane K. Baker, West Chester:

My experience in the last ten years in the almshouse in which I worked has given me a great interest in this subject. We had admitted 110 women to the maternity ward. The population from which these women came numbered 96,000. 105 of these women, one might justly say girls, were feeble-minded and deserted. That such a condition could exist in a community largely rural shows plainly the great necessity for a more protective care of the feeble-minded girls.

Dr. W. S. Cornell, Philadelphia:

I feel that the major part of the work should come from those who have charge of these cases and can speak regarding hundreds of cases. Dr. Carey speaks from that standpoint. One case which has been cited before is illustrative of many in these institutions: A girl who was an attendant at an institution for the feeble-minded resigned her position to marry one of the ex-inmates, a high-grade defective. Later two feeble-minded children were born to these two. This case might be duplicated in many institutions.

VII.

CHILD LABOR VS. THE CONSERVATION OF SCHOOL CHILDREN.¹

By OWEN R. LOVEJOY, New York, General Secretary of the National Child Labor Committee.

The subject of this Conference is the largest single topic that can engage the attention of the American citizen. You have been turning your attention toward various phases of the problem of the conservation of school children, especially from the points of view of the educator and the physician. I am invited to discuss the conservation of school children as affected by the problem of child labor.

Without laying any claim to familiarity with the details of the technical problems that have engaged you in these discussions—the problems of education which our teachers and schools are working out, and those problems of the health of children with which physicians are familiar—it may be possible to add one or two suggestions from the point of view of those who come in contact with the problems of the education and health of children in studying the causes, conditions and effects of their employment.

The relation of child labor to education has not received the attention it deserves either by those engaged in child labor reform or by those engaged in educational work. It has not been made sufficiently clear that the two cannot thrive together, or that the one part of the problem cannot be solved without statesmanlike treatment of the other. The close relationship is indicated by the fact that in states which provide a minimum age limit for the employment of children it is a matter of record that the majority of children leave school and enter employment within a few weeks of the birthday set by law. In states which provide no age limit, but leave the matter of child employment practically neglected, children leave school at a much earlier age, and the percentage of illiteracy is strikingly higher.

In dimensions, the problem of child labor stands between

¹ An address at the Conference on the Conservation of School Children, Lehigh University, April 3, 1912.

those specific numerical facts familiar to the school men and those familiar to the physicians or hospital specialists. There are not, on the one hand, so many children engaged in gainful occupations as are in school. On the other hand, many more children are employed in various occupations than ever appear for special treatment in orphanages, sanatoria, or hospitals.

The census returns of 1900 show approximately 1,750,000 working children between 10 and 15 years of age. What is still more significant, the same report showed that during the 20 years preceding 1900, while the population of the country had increased approximately 50 per cent., the number of working children had increased approximately 150 per cent. It further showed that the branches of the army of child workers had increased most rapidly in the kinds of employment that offer the least opportunity for physical and mental development, and give the least promise of training for industrial efficiency.

There are no complete census statistics since 1900. For twelve years our country has been compelled to depend on these figures, which were very inadequate and unsatisfactory even when they were issued, and are of still less value at the present time. It may be that the census returns on child labor gathered two years ago for the 13th census will not be published at all.

To indicate the unsatisfactory nature of the 1900 report, I may point to two concrete illustrations. The census showed 668 newsboys and newspaper sellers for the entire United States. While we know that in each of the large cities like New York, Chicago, Philadelphia and Boston, there are several times this number, and countless thousands scattered through the smaller cities and villages of the country, we must agree that the total returns published in the census are somewhat affected by such an item as this. Furthermore, the report contained no mention of children under 10 years of age, yet in New York, to a great degree, and in other cities where tenement home work is done to a lesser degree, we know that hundreds of little children from 5 to 10 years of age work several hours a day and often far into the night manufacturing goods for commerce.

A system which takes out of the public schools at least two

million of its children under 16 years of age, draws them away from school before more than a small percentage of them have learned anything that will be of permanent educational value, is a system deserving the most careful attention of the educator, even if he be interested in nothing beyond his profession.

Also, a system which according to the meager reports issued by the various state labor departments shows uniformly a higher ratio of disease and accident than is shown in the case of adults employed side by side with these children, is a matter of definite concern to physicians and other guardians of public health. For the present, therefore, laying aside any discussion of the economic advantage or disadvantage of child labor, passing over the relation of such employment to the moral development of children, we have before us a matter for definite action which in our judgment can best be handled by the combined efforts of those who guard the public health, those who foster education, and those specifically engaged in the more disagreeable task of reducing the immediate abuses of child labor through adequate laws efficiently enforced.

Child labor exists in America because three parties want it—the employer, the parent, and the child. Since these are the only three parties directly interested, they constitute a combination hard to break. Of course, not all employers nor all parents nor all children favor the system; but there are enough of each class to effect a good working force. The combination will never be broken unless by the combined efforts of those who see the implications of this problem and are able to interpret its significance to the general public. We have confidence then that the people of the country will not continue to tolerate what has already convinced many serious students as being a menace to education, health, and good citizenship.

How can we combine our energies? Perhaps I can best submit the question by stating briefly the natural limitations which the National Child Labor Committee seems to find to its proper field of action, as well as some of the positive efforts we put forth.

When the National Child Labor Committee entered upon

its work seven years ago, it faced one large question which must be answered in determining its policy. Should it undertake to establish such evidence regarding every form of child labor as would convince every one to whom the evidence was submitted, or should it undertake to act on the basis of such information as was at hand or could be quickly gathered? There was much to be said on both sides. We might, on the one hand, become a body of expert scientists, preparing carefully analyzed reports to serve in ten or twenty-five years from now as conclusive evidence in relation to present problems. We might, on the other hand, undertake to direct public attention to some of the more glaring abuses of the system in the hope that these abuses might be speedily corrected, and that eminent scientific bodies would take up the more fundamental forms of research.

For example, statisticians everywhere recognize a certain hazard in industry; and a body of legislation is being created to regulate the conditions under which people shall be employed. Students in universities, hospitals, and elsewhere are seeking to work out schemes by which a larger share of the burden which now falls so heavily upon the injured workman shall be transferred to the state or to the industry itself. In looking upon this problem, we discover that the social responsibility, already fairly well recognized, applies especially to children. Not only are children less intelligent, less cautious, and less able to defend their rights, but their physical inferiority exposes them to dangers which do not threaten the adult. Reports from a few states indicate that injuries to children under 16 years of age are in a ratio strikingly higher than to adults in the same industries. These statistical reports are meager, and many sections of the country are entirely devoid of such information.

However, it seemed to us that a committee formed to protect the interests of the working children should not wait until a complete body of statistics had been gathered, but should at once attempt to correct an abuse which confessedly threatens the safety of the young. We, therefore, decided to leave to statistical experts and medical scientists the more satisfying work of determining the exact per cent. of accidents to working children,

and set ourselves to the task of arousing public interest and securing legislation against this sacrifice. We assumed, and I believe are thoroughly scientific in so assuming, that children are an unsafe industrial risk. We assumed that the high percentage of accidents to working children in certain industries was not a coincidence, but was intrinsic, and therefore that child labor in certain specific dangerous occupations might, without injury to society, be suspended, at least until some body of scientific experts could come forward and prove that these scattering figures are not indicative but purely incidental, and that the little child is safe in contact with exposed machinery.

Complete statistics were not available to show the exact relation between child employment and compulsory school attendance; but we believed the statistics already gathered were sufficient to indicate that there is a relationship. Therefore, without waiting for ten years to bring up every scrap of evidence that might be gathered we took the evidence that lay at hand, and began to use it for creating a better system in various states.

Or suppose we consider the proper hours for employment of the working child. So far as we know there are no statistics gathered to show that it is more injurious to work all night than all day in glass factories. We have individual statements from a number of mothers to the effect that their children lose appetite when on the night shift; that they lose in weight; that their day sleep is fitful and broken. But this is evidence that a statistician would not consider conclusive. However, it seemed wise to the committee to rely on the common judgment of the race, that night is the time for sleep and day the proper time for work. We have, therefore, conducted campaigns in a number of states for the elimination of all children under 16 years from the night shift in glass factories. Where these laws have been in effect long enough to indicate a changed condition, we have abundant testimony from physicians, school teachers, and others, that school attendance increases, that the morals of the children in the towns are improved, and that general satisfaction prevails. We are, therefore, inclined to continue the campaign for the elimination of children from night work in glass factories, as

well as in other industries, until perchance it shall be proven by those qualified to make a thorough test of obscure physical indications, that we have made a mistake and that the physical welfare of children and of the race will be promoted by child labor at night.

Our attitude toward the length of the working day has been the same. No scientific evidence has been produced in favor of an 8-hour day, as against a 10- or 12-hour day for working children; but the Federal Government has established the 8-hour day on all its contracts. A large percentage of states in the treatment of those receiving state care, whether in reformatories or penitentiaries, have limited their working day to 8 hours, on the ground that the physical standards of the institution are better maintained. The trades unions, wherever strong enough, have established the 8-hour day as the standard for stalwart men. Many manufacturers on their own initiative have established the same limitation in the belief that production will be stimulated; and that society in general will be benefitted. All this is not conclusive evidence, but it seems to us to constitute a working hypothesis, and we have proceeded on the assumption that a working day long enough for state and government employees, long enough for penitentiary convicts, long enough for vigorous, adult men, is not too short a day for growing children.

The other lines of activity to which I have alluded are, of course, not less important. Workers in all lines of social service in this country are seriously handicapped by lack of strictly scientific evidence on which to base their program. Those who are interested in the conservation of school children, whether from the educational or the physical point of view, could not render any greater service at the present juncture than by encouraging such thorough and exhaustive research as shall at the end of a decade or quarter century leave no room for doubt in the public mind as to the extent, nature, and effects of the considerations we have here under discussion.

School men can study this problem without greatly adding to their daily burdens. The operation of the truancy law, the needs of the exceptional backward child, the problem of the

repeater, the development of courses of study fitted to those who demand physical activity, all these and similar problems present to the teacher interested in child conservation an opportunity to render a social service of prime value not only to the children involved but to the community and the communities of the future.

To the physician, hospital manager, or health officer, the problem should be equally intimate. How seldom do hospital records show the industrial history of the child or youth or adult brought for treatment; and yet through a series of years an accumulation of evidence would be possible, the value of which is beyond our present belief. We were told a few years ago by students in Chicago that certain hospital cases analyzed as to their industrial history gave evidence that they were simply worn-out human machines at 40 or 45 years of age, as the result of early hard work. To what extent is this true? Revelations that are coming to the public of phosphorus poisoning indicate how defective are some physicians' reports and hospital records.

In the case of children, there should be an effort, not to make the record as brief and obscure as possible, but as full and revealing.

I am confident that we must all take higher ground in relation to the care and training of our children than we have thus far taken in this country. We are developing our business to-day and regulating business on the newer theory that society has a right to dictate how its goods shall be produced and under what conditions they shall be handled. The business interests of manufacturers and merchants impel them to the development of higher specialized modes of securing efficiency. But when it comes to the human part of the problem, very little attention is given and very little is known. With an assumption that we are wearing very lightly, we assume that the majority of our children will pass through a normal and healthy childhood and youth and come safely to a well developed maturity. In the same way we assume that if a child is taken care of by our public schools for 4 or 5 hours a day, 5 days a week between the ages of 8 and 14 years, the child will be prepared for citizenship in

our democracy. Both assumptions are unwarranted, especially the latter. I venture to predict that the time is near at hand when in all our more advanced states we shall recognize that the child is so truly an asset of the state that during this entire period of its minority the state will claim supervision of its care, its physical training, and its educational opportunities.

I do not mean to indicate that the relation of parent to child will be less than now. On the other hand, it will be more. The service rendered will be larger and finer and more significant. There will be more freedom; but at the same time less neglect. We shall begin seriously to banish ignorance by seriously undertaking to meet the needs of an industrial civilization with educational processes fitted to the present appetite of parents and children, thus leading them on step by step from the mere consideration of the wage-earning value of education to the higher ground, the appreciation of its service in citizenship and the higher requirements of life.

To accomplish this, we must all know more than we do to-day of industry. The health officer must become the strong arm of our city, state, and federal governments. To-day in many sections the health officer is the physician who could not succeed in private practice. The policeman is considered far more important; but with the discovery of the causes of typhoid, tuberculosis, diphtheria, and other scourges, with the discovery of the serious after-results of malnutrition in babyhood, the health officer is predestined to rise in the near future to so prominent a place that the community will look upon him as its chief servant. We must begin to insist that education and health are the paramount assets of our civilization and that without these democracy cannot achieve its mission either in relation to other nations or to the more immediate demands of its own citizens.

DISCUSSION.

President Drinker:

I think we can be happy from living in an age when such opportunities are presented in so sympathetic an atmosphere. I for one feel that the world is growing better. I think we all feel in regard to this question that it is

one of those which when we discuss we find all the world beginning to think alike.

Mr. Louis Nusbaum, Philadelphia:

I, too, am an optimist by professional training and practice. From the point of view of one of those educators in sympathy with these ideas, and from the point of view of one who has come in close contact with this work and realizes the shortcomings of our school system, I can appreciate such cases as have been brought to our attention by Mr. Lovejoy. I think further, that we are making strides in the direction suggested by him. There is no doubt about the absolute right of everything he has told us and of our duty in this matter. But, for a number of years, from my work as the principal of a school in the heart of the slum district of a large city I can say that an intensive investigation of every case requiring charity among the patrons of the school would have kept a charitable organization busy for the best part of the year. The puzzling question is what to do in a case typical of hundreds. A mother of five or six children, the oldest of which is 13, comes to the school and states that she cannot let this oldest boy come to school because the father is sick with tuberculosis, and they are living in one room, the rent of which is paid by some charitable organization. While we are all agreed as to the inherent rights of the growing generation to a decent start in life, we are honestly puzzled to know what to do in the case of the poor mother. Is it fair that we always shall let this generation suffer to improve the condition of the next?

Dr. Groszmann, Plainfield, N. J.:

The system of pensioning widows or disabled workmen is not at all a new proposition and it is established in various communities and states in Europe. It may be well to mention the laws of Germany in the matter of workmen's insurance. Out of the earnings of every workman a certain percentage is taken by the state to provide for sickness and death. We must remember that child labor is the result of economic conditions. There must be constructive legislation as well as restrictive legislation. If we shall be able to introduce into our country some of the constructive legislation enacted on the other side we may obviate some of the difficulties presented.

Dr. H. M. Bracken, St. Paul:

I am glad to have heard Mr. Lovejoy refer to the close association of public health, child labor and education. These should go hand in hand. It is encouraging to have him put health before education, because education without health is of little value, and the child growing into adult life without health is of little value. Mr. Lovejoy referred to the unfortunate fact that our health officers were incompetent. This is not quite a fair statement. Most of our health officers are busy physicians whose first duty is to make a

living for their own families and they will neglect their duties as health officers rather than their duties to their children. This type of health officer should be done away with; we should have men and women who would give their whole time to public health just as they do to educational problems.

The speaker refers to the amount of money spent on education. In my own state from six to eight dollars per capita is spent on education and three cents per capita on public health.

Dr. W. S. Cornell, Philadelphia:

I believe we should take a firm stand on the statement that the child should be given a chance. Democracy means that every child should have an equal opportunity. I understand that the New York Society for Organizing Charity can take care of every case. There are private agencies to take care of unfortunate and deserving people. A lot of the boys get into bad company in addition to lacking education. We shall never solve the problem until we have compulsory registration of births.

President Drinker:

While not experienced in this line of work, but speaking as one who left Lehigh forty-two years ago, and went up into one of the mining regions where the children spent much time in hard labor, I am in a position to heartily appreciate Mr. Lovejoy's remarks concerning child-labor, and of the laws in force in some of the western states. In regard to the question of help from the corporation in case of disability of the employee, the western states are far ahead of anything we have here.

Mr. Lovejoy:

I am glad the speaker brought out the comparison between education and health. That ought to be known all through the country. Alcohol is a large cause of child labor. One of the most stubborn sections of the country for child labor was where they do not have alcohol, and the people are mostly Methodists and Quakers. While the saloon and child labor do not always go hand in hand, in many instances women are left helpless and poor through the ravages of that curse.

VIII.

TEACHING HYGIENE IN PUBLIC SCHOOLS: WHAT SHOULD BE TAUGHT? THE PHYSICIAN'S VIEW.¹

By **SENECA EGBERT, A.M., M.D.**, Philadelphia, Professor of Hygiene, Medico-Chirurgical College.

To consider in full the teaching of hygiene from the standpoint of a physician would involve a scope of the theme so broad as to demand much more time than is allotted to me this morning. In fact, this great science to-day relates or is related to almost everything that affects the physical life of man, and is also concerned with many of the experiences of his mental and spiritual life.

Happily, public opinion is at last coming to appreciate that hygiene should hold, above almost everything else, a leading position in the school curriculum, and that its fundamental principles, at least, should be instilled into every pupil old enough to comprehend them and appreciate their importance to his or her future welfare. For too long a time our people have been accustomed to worship mental education almost as a fetic, and have failed to see that minds developed at the expense of physical soundness are as houses builded upon sand. But such states of opinion are passing and we are beginning to realize that in the conservation of our national resources there are none of more value or importance than those represented by the human vitality and physical health of our citizens. And so we are moved at last to endeavor not only to secure for our children sound bodies as the abodes for sane and well developed minds, but also to teach them in our public schools those things which will enable them to conserve and improve their physical health throughout their natural lives.

Wherefore, we may well consider what shall be taught.

Speaking as a physician, it seems to me that we should first

¹ Read at the Conference on the Conservation of School Children, Lehigh University, April 4, 1912.

have them know and appreciate their bodies as vital entities and especially as of a triune nature. In other words, that no one may reasonably hope for excellence in living if either the spiritual, mental or physical personality and its needs be neglected, and that the wise and efficient man must strive to develop all three parts of himself. This involves, of course, a practical working knowledge of human anatomy and physiology, not as complete, it is true, as the intelligent individual will for his own advantage acquire later, but fairly comprehensive and sound in principles, so that future knowledge will not be warped or colored by faulty notions or misconceptions. Need I say that this necessitates teachers competent to give such instruction who have a real enthusiasm for the subject, and also suggests the omission of unessential and, for the time, useless details. There can be no excuse for anatomy and physiology, jointly considered as they should be, seeming a dry or uninteresting subject to any child, and, least of all, for any professed teacher admitting that it may be.

In such efficient and fundamental teaching of the body's structure and function there will naturally be many opportunities for expressing and emphasizing laws and rules of personal hygiene and for creating a positive desire for that sound condition of body indicated by continued good health and high physical, mental and moral efficiency.

This preliminary instruction leads to the study of disease and its classification and causes, that it may be avoided, prevented or cured. The most elementary classification of disease at once indicates that many of the ills that flesh is heir to or afflicted with are due to an abnormal condition of the patient's own body—faults of nutrition or excretion, for example—and, on the other hand, that a considerable number of maladies are the result of the invasion of the body by living microorganisms from without. This opens up broad lines of study with respect to one's environment and concerning modes of infection, immunity, prophylaxis, etc.

How a well-informed teacher could fail to make our present

knowledge pertaining to the causes and transmission of the infectious diseases and to the means of prevention most interesting to even young pupils, I fail to see, and still more attractive to all must be the investigation and study of our modern achievements in the development of immunity to such maladies. Moreover, the appreciation of the reasons and necessity for such protective governmental measures as quarantine, disinfection, compulsory vaccination, etc., makes for good citizenship in more than one respect, as we shall see later on.

As for the relation of environment to health and disease, we here enter upon a field of study that may be limited only by the time that may fairly be apportioned to our general subject. All such questions as involve the atmosphere, water, food, and their respective impurities, our habitations, clothing, exercise, heredity, habits of living, sex and social relations, the disposal of wastes, etc., can be taken up in turn and studied with profit. Nor should opportunity be lost of including in the course special instruction regarding sex hygiene and the influence of heredity, without which no study of general hygiene may be considered at all complete.

Granting that some such comprehensive instruction in the subject should be given to every boy or girl before leaving the public schools, one result will almost surely develop: the pupil who at first was simply interested and curious, will soon strive to learn for the sake of his personal benefit and self-improvement, and then, before he is really aware of it, will become altruistic in his motives where hitherto he was rather selfish or egoistic. This is one of the peculiarities of the study of hygiene. Whoever pursues it, even though to a limited extent, not only gains that which will benefit him physically, but becomes a better and higher social being, moved with a desire to help others than himself.

A question that naturally arises is as to when such teaching should be imparted. Instruction of very young children in matters hygienic cannot be very systematic or thorough and may possibly be best done, if at all, by attempting to inculcate com-

paratively few and simple truths and by directing attention to good examples for practice and imitation. It is doubtful whether a pupil in the primary grades can appreciate much of anatomy or physiology except that which concerns the exterior of the body or the simpler structures and functions; but we may at this time make a beginning of the nature studies that will later on lead gradually and almost unconsciously into the proper apprehension of sex hygiene as one important phase of the general subject.

In fact, were it not that by far the greater number of public school pupils nominally terminate their education in the grammar schools, it might be well to postpone much of the systematic teaching of hygiene and sanitation until after admission to the high school. It is, however, a matter of great practical importance that almost thirty per cent. of our total population is under fourteen years of age and that most of those that survive will leave school forever at that period or within a year or two thereafter. We must accordingly do what we can to give these such instruction as will help and protect them in after-life, and so a well arranged course in hygiene, including some discussion of as many of the foregoing subdivisions as the scholars can reasonably comprehend and assimilate, should be made a part of the schedule for the grammar school.

Such a course, in order to awaken lively interest and fix important fundamentals as principles of conduct for the after-life, should appeal strongly to the pupil's personal consciousness and sense of self-profit in the higher sense. If we can give the boys and girls of these grades a fair working knowledge of their body structure and functions, of the nature and causes of disease and means for its prevention, of the reasons and necessity for governmental rules and regulations concerning transmissible maladies, and such appreciation of the laws that govern the maintenance and improvement of health, not forgetting honest and reasonable instruction in the principles of sex hygiene, we shall be doing much for our future citizenship and the public welfare.

For those who are fortunate enough to advance to the high school, I would use the foregoing as a basis, expanding and

enlarging upon the respective themes already mentioned, until the course involved an extensive scope of the general subject and, as intimated, until the altruistic appreciation of it supplanted the egoistic and it was actually apprehended as being, in truth, the Science of Public Health.

There is no reason, so far as I can see, why every high school graduate should not and may not have a right knowledge of his or her own body, should not look upon health as the greatest personal asset next to moral character, should not appreciate it as most valuable capital in entering upon one's life-work, and should not also comprehend one's duties and one's opportunities in helping and uplifting others. Nothing in the scope of general hygiene and sanitation should be beyond the ken and comprehension of an advanced high school pupil. It is essentially a common sense study, with enough of scientific discovery and achievement to not only awaken a lively interest but also to furnish a substantial basis for a plan of action and self-control. A knowledge of the true nature and etiologic agencies of disease must prevent any one from being deluded by false doctrines of life or worshipping false gods of therapy.

So also, an appreciation of the human body's power of self-protection and of the principles of immunity that are now being so wonderfully revealed by the investigations of many earnest workers in this domain, must prevent a nihilistic attitude regarding disease and lessen opposition to those measures that are rapidly eliminating one scourge after another from human experience. When the high school boy sees that within the short period of his life, yes, even of his school life, diphtheria, malaria, yellow fever, typhoid fever and other equally grave maladies have been conquered and have lost their power to terrify, and when he also sees that this has been done by means and methods entirely within his comprehension, he is not likely to be an obstructor of progress, but a good citizen who will enthusiastically support the health laws and administration of his city, state and country. He will comprehend, as France has already done, that Pasteur and not Napoleon was the greatest man of his nation; when the

Panama Canal is opened for traffic, he will first give credit, not to the engineers who constructed it, but to the able physician and sanitarian who went before and made the work possible, and he will look upon the saving of 25,000 lives in Pennsylvania within the past five years as a far greater and nobler achievement than the founding of a pseudo-science and the acquisition by a Mrs. Eddy of many paltry dollars and an ephemeral fame.

From the standpoint of the physician, there is, indeed, much of hygiene that may well be taught in our public schools: much that is already available for teaching. What is really needed for the work are competent teachers. Where shall we find them?

IX.

TEACHING HYGIENE: WHAT SHOULD BE TAUGHT? FROM THE TEACHER'S VIEWPOINT.¹

By PERCY HUGHES, A.M., PH.D., South Bethlehem, Pa., Professor of Philosophy and Education, Lehigh University.

In the development of school hygiene, the medical and teaching professions are working in very close association. Not only have the chief medical societies made school hygiene a subject of investigation, but, in the National Education Association, physicians have taken a leading part in the work of the departments of School Hygiene, Physical Education and School Patrons. The American School Hygiene Association is composed largely of physicians, many of whom, representing departments of physical education in colleges, schools and school systems, are supervising every feature of school life, in its hygienic aspect. Some of our best text-books in hygiene are prepared by physicians experienced in teaching. The medical inspection of schools must result in still closer association between these two professions, and will undoubtedly affect most favorably the attitude of the individual teacher towards the teaching of health.

Therefore the physician is prepared to recognize that the social, scientific and economic demands for a greater emphasis upon education for health combine with a similar impulse that has arisen within the school itself. Health, in the broad sense, is the direction in which all educational reforms have been working, and in modern education this impulse has been greatly accentuated by the systematic study of child nature and by investigation into the causes of retardation in schools.

In many of our more important schools and in our large school systems, radical revisions are now being made in the teaching of hygiene. These changes, then, are a natural growth of educational theory and of school life.

In studying these revisions I believe we notice certain tendencies or directions as to what shall be taught in school hygiene. As

¹ Read at the Conference on the Conservation of School Children, Lehigh University, April 4, 1912.

I am to discuss this question from the teacher's standpoint I shall not so much attempt to indicate what topics in hygiene should be studied, as to state what phases or aspects of each and every topic the teacher, as I see him, tends now to select for emphasis and as the center of instruction in hygiene.

Many of our text-books in hygiene still contain much physiologic information, the application of which must come, if at all, much later in life. And even the best text-books discuss matters in a way that has little force to the child. These characteristics seem largely to be the result of a wave of reforming enthusiasm which some twenty-five years ago led our schools to center instruction in health upon physiology.

But experience has shown that information has little effect upon the child unless he can apply it to his child life, and it is sometimes injurious to ask him to take the adult point of view. Indeed, it seems that health is not an interesting subject to the child, and there is some danger of morbid effects, if through eight years we center the child's attention upon his body.

Hence, it appears to be the present tendency to center hygienic instruction not upon physiology, but upon the training of the child in habits which fit him to live efficiently and happily his present child life. Our general system of education, which compels a group of children to study words for hours seated in a confined atmosphere, of itself raises hygienic problems innumerable which we endeavor to solve in the presence of the child and with his aid. By centering his attention upon the problems of school life around him, we maintain in him the objective attitude. Thus what we shall teach is not so much information for future use as habits for present efficiency and happiness; for it is held that we best prepare the child to live well later on by teaching him to live well now, as a child. This is the first tendency I would note in present revisions. And the second is like it.

The school now attempts to unify the *whole* school life of the child in terms of health. Here the teacher is compelled to insist that we can not separate the health of the body from that of the mind, not only because one often is the cause of the other,

but, even more, because the health of the body does not mean keeping free from sickness and living long; it is wholly defined and measured by the health of the mind whose servant it is; also that, to make the conditions of a school healthful, the teacher considers not only such matters as medical inspection, physical exercises, domestic science and art, but also such studies as history, geography and literature, and the social as well as the physical atmosphere of the school room, with the intention of cherishing a broad interest in the world's life and work, a hopeful outlook upon life, and a disposition to coöperate in achievement. We may symbolize this unifying tendency by saying that we would have our schools temples of health rather than of learning.

So the period which according to law we devote to hygiene we tend to regard as a time for reflection upon the training for the whole school life of the child, at the time. We find it difficult to distinguish moral from hygienic problems, or to separate the physiologic from the psychical conditions of health.

There are some very eminent in the teaching of hygiene, who feel that no period should be given to explicit instruction in health or hygiene. They carry to an extreme, as I understand it, the idea that his own health is not a natural interest of the child, and that it nurses morbidity of disposition to dwell upon health as an end in itself.

But it seems a sound principle that whatever we wish the child to recall and use intelligently we should bring explicitly to the focus of his attention, and there is good reason to believe that the principles of conduct and health will gain in force and applicability if they are brought together in systematic and organizing instruction at some definite period devoted to that work.

The objections to this explicit instruction in hygiene are met, I believe, by the contention that it is not health in the narrow sense that we are teaching. We are making clear to the child the means whereby the school life is maintained on a plane of happiness and efficiency in achievement. Of course, the first point is that it be so maintained, for only by living the healthy life can the child understand why he should live it. The information we give will be forgotten, or will not be applied; the

habits in which we would train him will in times of stress be broken, and will not be renewed, unless the child actually experiences the joy of living in physical and social health. Without that insight, memory, and ideal, we instruct and train in vain, for the motive is lacking to apply.

I will endeavor to give these words some concrete meaning by mentioning some things which are thus taught during the period devoted to hygiene. Since it is reasonably safe only to assume that a child will stay in the school until he reach the fifth grade, we may take the work of the first five grades as a unit, in which the indispensable is taught, and call elementary hygiene.

Our better primary schools and kindergartens approach during the first two years of school life the method now made famous by Dr. Montessori, in teaching little children hygiene. The child is taught self-help and deportment, learning, so far as possible, to wash and dress itself in just the right way, to meet people and leave them, to speak and listen and move about on all occasions with grace and precision. In the spirit of play the children may thus attain great efficiency and self-control, and the attitude is objective, directed towards the life of the school room, and the dolls, the flowers and the animal pets which the school room should house. Physiology is here taught only in so far as it is useful in learning these activities.

Without descending too far into detail, I may illustrate what should be taught in the third and fourth grades, by the "Daily Routine," which each child may draw up for himself under the suggestions of the teacher, and which may take the following form, which I owe to Dr. Crampton:

1. Rising as soon as awake. Throw the bedclothes over the foot of the bed.
2. Breathing and setting-up exercises appropriate for the grade.
3. Washing, hot water, soap and scrubbing brush on face, neck, hands and chest. Cold douche on face, neck and chest. Cleaning finger nails.
4. Brushing the teeth.
5. Dressing, with inspection of clothes as to cleanliness.
6. Preparation for breakfast. A few minutes in the fresh air if possible. Cleanliness of napkins and utensils.
7. Eating slowly and mastication.

8. Attention to toilet and washing afterwards.
9. Preparation for school. Books and clothes are clean and in order.
10. Observe regulations as to entering school.
11. Care of outer clothing and attention to order of desk and preparation for inspection.
12. Sitting posture and standing posture in school. School room hygiene.
13. Drinking water at recess.
14. Return to home for lunch without loitering. Washing before lunch. Eating slowly. Preparation for school. Books and clothes are clean and in order.
15. Play and fresh air after school.
16. Lessons. Pay attention to study and finish the work.
17. Washing and preparation for evening meal.
18. Preparation for bed. Attend the toilet, wash, put clothes in order, open window.

In these four grades entire frankness with regard to all the natural operations with which the child is familiar in himself, or in the animal pets with which he plays, will conduce to genuine refinement of thought with regard to these operations throughout life, and make easily practicable a similar method throughout the school course.

Physiology here will deal only with so much of the body as is manifest to view, and will discuss rather the effects of healthy conduct than the internal conditions of digestion, etc.

As many children leave school at the fifth grade, we must in this grade systematically endeavor to bring the child life into contact with as much of the world's life as is feasible and suitable. The school equipment is studied and the janitor may be brought into service, to make the boy feel the interest which a man of the world takes in such matters as ventilation, cleanliness, etc. The home life is discussed. The care of the streets, lighting, water and sewage supply are brought to the child as phases of his present life. The treatment by city and state of contagious disease is brought within his sense experience, and so discussed.

Upon the basis of this hygienic attitude towards his present life, the boy learns as much of physiology as he needs in order to understand his present life, of which knowledge the details

may be forgotten, if these principles stay in remembrance: 1. The delicacy of the bodily structure and the persistent accumulative effect upon it of sickness and abuse. 2. The effects of all forms of exercise upon habit and growth. 3. The essential notion of bacterial infection.

The instruction in hygiene during the next three grades, the last of the common school, is called the intermediate. It is the standard course of the schools. The same general tendencies seem to be observable here as in the elementary grades. What is taught is to be not so much physiology, even applied physiology, as hygiene practised and explained; and hygiene is to mean not so much the science of keeping well and living long, as the knowledge of what it actually means to live efficiently.

In these grades in many schools the boy and girl, through civic leagues, and associations for the use and beautifying of vacant lots, come in close contact with the activities of the town or city, and are in a position to consider the operations of the health, fire, police, building and street cleaning department as parts of their own lives. Hence they can be instructed in the means used in fighting disease, looking on the whole matter as a social enterprise, and not as an individual fear. Objectivity of attitude is thus still maintained.

Excellent series of text-books and supplementary readers are now ready for the schools, if only the teachers were ready for the books. But it is a fact easily verified that there are many teachers who have the greatest difficulty in understanding even these simple books, and who know nothing beyond them. I would not say that the majority of teachers are in this condition, but I am tempted to say it.

With regard to these text-books, one defect of importance seems to me to be the failure to make the city boy aware of the great differences between his life and occupations and those of the farmer's son. An understanding of the hygienic aspect of civilization is largely the understanding of this difference. It is treated but lightly at the best. The country boy and girl have to learn above everything the care of plant and animal

life, and they see food on the hoof and on the stalk. Many absurdities of a false refinement would disappear before an enlightenment as to those occupations and processes which lie at the basis of our civilization.

In so far as I have endeavored to study the topics which should appear in a course in hygiene, I have been so impressed by the adaptation of some recent text-books in hygiene to individual and social needs, that so far as the selection of topics is concerned, I wish it were appropriate simply to name some of the best of these works. A criticism to which they in most cases lie open, is, I think, the discussion of individual health, in the sense of keeping well and living long, as though it were the natural aim of a school child. The tendency to regard the teaching of hygiene as a matter of information often leads even the best of these books to give information of little value or interest. To say that tobacco kills fish is to invite the boy's rejoinder that so does fresh air. Pictures of centenarian women and a boy tidy but sad are not adapted to the end in view. I have mentioned what seems to me a serious omission, the failure to contrast sufficiently civic life with the life of the farm boy. These text-books agree even more in what they omit than in what they include.

Emphasis upon the need of regular excretion, upon proper precaution at toilet, and perfect frankness in dealing with the lives and propagation of the school flowers and pets are demanded by the child life. The idea that ill health is a kind of immorality, and that it commonly means infection may be relied on to suggest much.

According to statistics prepared for the American School Hygiene Association, in 1910, only 8 per cent. of our high schools give credit for hygiene, only 18 per cent. prescribe the teaching of hygiene, only 5 per cent. require gymnastic work, only 1 per cent. compel students to pursue some form of athletics, or give credit therefor. Had answers been received from the smaller schools the statistics would have shown conditions even worse.

The reason commonly given for not requiring hygiene in the high schools, or giving credit for it, is that it has already been

pursued *ad nauseam* in the grades. The tendency as I have just shown is to eliminate much of this repetition in the grades, which can be done without breaking the laws on the subject. A study of the text-books for hygiene show how much material of great interest may here be introduced for the first time; and the whole point of view of the boy or girl is different. Everything, however, will depend on the enthusiasm and knowledge of the instructor.

But a half year, or even a whole year, of hygiene and physiology will not solve the extremely difficult problems of high school hygiene. High school students commonly cease to be under the direct control of any one teacher and are suddenly given unaccustomed freedom. At home they begin to assert independence and demand or acquire pocket money. Something of the wholesome boisterousness of childhood often gives way to less wholesome forms of pleasure. Absurd and injurious practices in food and dress, insufficient exercise and sleep become more common. Less than 25 per cent. of the children take any part in athletics, at least in the high schools I know best. It is extremely likely that both boys and girls will fall into bad personal habits.

How may hygienic influences be exercised upon high school students? We wish to see every boy and every girl living in the presence of a school sentiment which will stimulate them to make the best of themselves to develop capacities for the good and the credit of the whole school. In other words, we wish to depend upon a form of student self-government and democracy, such as led Greece and Italy, in the days of the first and the second adolescence of humanity, to the realization of the finest types of personality in the city state. Such a method of teaching hygiene succeeds naturally in the high school to the system of instruction which has been described for the grades; but I feel it to be useless to enter further into a matter which is at the present time largely theoretical. If there is any school which earnestly follows such a plan, I have failed to learn about it.

At least the teaching of physiology and hygiene in every high school by competent and earnest men would seem possible,

and profitable, and in some states mere conformity to the requirements of the law.

If there is an emergency at this time as regards venereal disease may we not lay it down as fundamental that emergency measures should not enter into the building up of the school course. The development of the school is vital, organic, and can not be twisted about to meet emergencies. In the press, in parents' associations, industrial and public lecture courses we have means to teach what will spread as rapidly as vicious gossip spreads. The school may proceed to develop along the lines which child nature suggests to the educator.

Our American plan of coeducation seems to make inadvisable the European methods of dealing with this matter. If the hygienic conception of school life itself is worked out, to mean complete living at the stage of the child's development, our boys and girls will have the abiding influence of the memory of having lived under conditions where kindly sentiment should develop without the sex relation once coming to the center of attention. This, combined with that frankness of speech in all matters that naturally enter the child's life, from the first grade on, are, in my judgment, the answers which the school gives to this problem. In all these matters provide wholesome conditions and follow the child's lead. Tell him what he asks you about.

I have endeavored to show how in some ways the school may in the period devoted to teaching hygiene bring to the focus of the child's attention all those factors which properly employed by the child will make his school life an efficient and a happy one. This involves, as I have said, the power of the teacher to grasp the whole school curriculum and school life as a means to the proper realization of the child's powers which is, properly speaking, health. It is an ideal which requires teaching of a high order.

I have already referred to the insufficient preparation of our school teachers to teach hygiene intelligently. At the last meeting of the National Education Association, the department on school hygiene declared that the normal schools were almost universally failing to keep pace with the progress in school hygiene.

The head of a normal school declares that the normal schools are asleep, as far as hygiene is concerned. In 1910, 60 per cent. of normal schools required students to study hygiene, 68 per cent. require them to take gymnastic exercise, and 11 per cent. require work in athletics, 43 per cent. have athletic fields, 61 per cent. have gymnasias, 58 per cent. have tennis courts, 53 per cent. have a department of physical education. But only 36 per cent. had medical examination of students; only 29 per cent. gave courses in play ground management.

We see how far in advance normal schools are of high schools in this matter. Yet it is but the other day that a normal school graduate, and from a good normal school too, assured me that a spring of water rising under a house was all right, since it tasted all right.

But there are several gentlemen present prepared to speak upon the work of the normal schools.

DISCUSSION.

Principal F. D. Raub, Allentown, Pa.:

Modern text-books on this science differ largely from those in use years ago. Publishers are ready at all times to cater to their trade like all other manufacturers and shape their products to meet the demands and requirements of the purchaser. Formerly the text-books on this subject discussed, in a technical manner, the human body, but at the present, works on this subject present the matter from a hygienic standpoint, calling attention to the attainment of a knowledge of preserving the body in a healthy condition, and increasing the strength and vitality, if at all weakened by any cause. The tendency of the medical profession is to educate the laity, to preserve and maintain a bodily vigor capable of coping with the varied conditions met with in life. If in the schools, the pupils can be imbued with the importance of preserving and attaining a certain manner of life conducive to good health and a vigorous body, much will be accomplished to render the possessor a happy and useful member of the community.

The nation and state are putting forth great efforts to safeguard the health of the people, and it is but proper that the public schools should perform their duty in disseminating truths which tend to a proper appreciation of attaining and retaining a healthy body. In the primary grades the instruction is necessarily oral, and instruction of a kind comprehended by a primary pupil must be furnished. Some of the features introduced at this time are care of the body, including correct position in sitting, standing, walking, etc. The importance of the care of teeth can readily be understood by the child,

and attention given that the instruction is carried out. Cleanliness of face, hands, body, including clothing worn can be dwelt upon. The kind of food necessary and the avoidance of such that is unnecessary and unwholesome must be taken into account.

The necessity of fresh air, and pure water can be readily understood and explained. The use of the special senses and the care of certain sense organs can be judiciously dwelt upon. Proper breathing exercises can be introduced and the importance of same can be enlarged upon.

These facts and others can readily be taught in the primary grades, but in the grammar grades more of technical detail can be presented and made intelligible, always bearing in mind the necessity of inculcating good health habits and impress the pupils with the fact that much of their happiness and success in life largely depend upon the formation of habits of breathing properly, eating, sufficient exercise, etc., which will insure the development of strong healthy bodies.

It would be unfortunate, however, that pupils should leave or pass the grammar grades, not knowing the different organs and parts and functions of same, and if the study is continued in high school these facts should receive attention in connection with a knowledge of the general structure and anatomy of the human body, so that they may have an intelligent conception of the same.

Dr. M. P. E. Groszmann, Plainfield, N. J.:

I was deeply interested in what Dr. Hughes said about the necessity of developing in children the proper habits of life: the daily routine, the matter of baths, the care of the teeth, etc. It is particularly necessary to work along those lines with children who are not absolutely normal, not only the feeble-minded but also the backward. Atypical children require a great deal of care in that particular direction. Much of the possibility of redeeming the atypical and the backward child depends upon the proper training in daily habits. That is the reason I have sometimes suggested that the special class alone will not wholly solve the problem of the atypical child, but that we need some kind of institutional care for such children. In my own work I lay even more stress upon the development and training in this field than upon the school instruction; in fact I go so far that I do not encourage the employment of any teacher who will not be able to give physical training and who will not be ready at any time to take physical care of a child. This coördination of the physical care and the training in proper hygienic habits which reflect upon the mental and moral attitude, I consider extremely necessary, and I think we should be thankful to Dr. Hughes for calling attention to this point. Our text-book work will avail very little without it, especially as we have so very little control over the home conditions of these children. If we could have that, then perhaps the training in a specially regulated environment would not be so necessary.

Dr. Helen C. Putnam, Providence:

I am sorry not to have heard the two preceding papers, as I have just arrived, but perhaps what I wish to say has not already been said.

It does little good to recite health maxims while under unhygienic school conditions. Our colleges and universities where teachers are trained, and especially our schools, are forcing beds for certain forms of ill health, because of their dust, high temperatures and aridity, all included under the general terms uncleanliness and bad ventilation. They should be as clean as a well kept home. No good housekeeper has the dirty floors and bad smelling rooms with which we shut in children and teachers. The law compels many of them out of well kept homes into these surroundings. As a result the death-rate among teachers from tuberculosis is higher than the average death-rate from tuberculosis, and higher than in any other profession. Those administering teachers retirement funds state that the majority retire before reaching the old age limit because of ill health, usually anemia, lung and nerve troubles—all the accompaniments of bad air, the so-called "bad air diseases." The tuberculosis death-rate increases all through school years and immediately after, until at the years of marriage and parenthood it is the commonest cause of death. There is only one kind of school that seems to check the "bad air diseases," the open air school. Here, doing the same school work, fragile and even tuberculous children invariably improve in health, at the same time catching up with their classes in the regular school where some were laggards because not strong. But children have to be poorly first, before school authorities will give them these sanitary schools, as they have to be arrested and tried in court before they can have industrial training and other educational advantages to be found only in our reform schools. Autopsies on children who died from scarlet fever, diphtheria or other diseases where tuberculosis was not suspected find over one-third to have had latent tuberculosis. This justifies the belief that many delicate children are in similar condition, and accounts in part for the efficacy of open air schools for all such children.

A large percentage of school rooms have no thermometer; another very considerable percentage have thermometers that do not work; and in the schools I have visited having them in commission I have never found them, with very few exceptions, under 72° in winter months. Very frequently I have found them in the 80s. In a few memoranda of temperatures in college and university libraries 76-80° is the favorite condition. It is no wonder that our vital statistics are below those of other countries when authorities train people to these habits.

The janitor is a most important factor in children's health. He lays the foundation of national vitality, educating health habits in the home-makers of the future, setting our standards of ventilation, cleanliness, temperature. But janitors are not even housekeepers. They are men with no pretense to training in house-cleaning methods, much less in simple hygiene and sanitation.

Their salaries are often higher than those of elementary teachers and even principals who spend years in fitting for their work and undergo official testing and retesting, and whose health while engaged in their vocation is at the mercy of ignorant men with the results I have quoted.

We need training classes for janitors. Candidates for janitorships should be examined in sanitary methods. Those cities where janitors are included in civil service laws do not yet do this effectively—the men have no place to qualify. Janitors' routine work should be measured by instruments of precision, as thermometer, hygrometer, anemometer, etc.; and they should be dismissed for failure to keep conditions up to standard as shown by permanent records. One of the best ways to teach children hygiene is to have them take and record these observations. Experiments are under way along all these lines. They should be supported by physicians, who should insistently urge trained caretakers of health conditions at school.

Dr. J. E. Tuckerman, Cleveland:

In comparing statistics we need to exercise care. I do not believe that statistics will show better conditions in Germany than here. I am not questioning the Doctor's statement in regard to the bad conditions in school, but I think we have to be a little bit careful in taking and interpreting statistics.

X.

TEACHING OF HYGIENE—METHODS IN VOGUE.¹

By W. S. STEELB, A.M., LL.B., Harrisburg, Principal Harrisburg High School.

As a graduate of a college classical course coming out at a time when the teaching of any of the sciences in classical course was little more than mere memory training, but slightly experimental and investigative work, I am at a loss to understand why I am asked to take this subject. Because it is certainly not my specialty I make no claim to originality in this paper. While I have not copied consciously the language of any body, I have taken the substance from any sources at hand. I am especially indebted to two of my own teachers both from observation in their classrooms and from actual conversation about this very subject. I may also trespass upon the line of thought of my successor upon this platform because the line of demarcation between what actually is and what ought to be educational thought all over the country is isothermal rather than longitudinal. What I may consider as actually in vogue may only be suggested elsewhere, while on the other hand I am sure that what we know is that the correct practice cannot be carried out in our present crowded building.

This question quite naturally separates into three main divisions:

- (a) Definition of Hygiene.
- (b) Importance of Hygiene.
- (c) Methods in Use in Teaching Hygiene.

DEFINITION OF HYGIENE.

Possibly it is superfluous to give these definitions before an audience composed largely of physicians, but I am thinking of that portion of the audience which does not distinguish between physiology and hygiene, or between hygiene and anatomy.

¹ Read at the Conference on the Conservation of School Children, Lehigh University, April 4, 1912.

1. The science which tells how to keep living bodies in good condition or working order, or
2. That teaches the art of preserving the health and preventing disease.
3. That treats of the laws of health, how to care for, how to use and how to nourish the body.

IMPORTANCE OF HYGIENE.

Under this head

1. *It is necessary for the present and future health of the body.*

A thousand illustrations might be given but a few are sufficient.

(a) It teaches one how to avoid taking cold, and tells us that a neglected cold may lead to something worse. (b) It teaches the causes of such diseases as yellow fever, typhoid fever, tuberculosis and malaria. Historically it may tell us that neglect of what are to-day the most common measures of prevention, sent millions to avoidable death in ancient times. (c) It teaches what to do in case of such injuries to the body, as a broken arm or a cut blood vessel.

Army surgeons, as you know, declare that in most wars before the present century ignorance of the laws of hygiene resulted in more deaths than did the bullets of the enemy.

2. *Hygiene is of economic importance.*

(a) Before 1796, in cities having a population of 100,000, more than 2000 cases of small-pox occurred every year resulting in hundreds of deaths.

Boston, in 1721, with a population of 11,000, had nearly 6000 cases of small-pox. Eighteen thousand people died in Iceland of this disease during 1707-1709. It is now one of the rarest of diseases.

Yellow fever, which once practically depopulated whole districts, is now under almost absolute control. Malaria is no longer dreaded. Tuberculosis will be conquered before the dawn of the 21st century, probably much before.

(b) About one-quarter of all children die in the first year of life. This is due largely to ignorance and carelessness. Bad

sanitation and poorly lighted and ventilated living places, that are the result of poverty which in turn may be the result of dissipation and excess of one sort or another, may contribute to this death-rate.

3. *Hygiene is necessarily a part of school requirements.*

Because: It is the only place where many children can be taught the means of taking care of themselves. The very child that needs the most to know this often comes from a home where there is absolutely no chance to learn it. I need not expand this, the same reason compels the public school sometimes to do both parental work and Sunday-school work in addition to its own proper work. The child who must work for a living needs to know the necessity of good plain food; needs to know how to care for his body if he ever expects to accomplish anything by his work.

4. *It has an ethical value.*

It ought to arouse a wholesome respect for the Creator, by showing the wonderful coördination of all parts of the body.

METHODS IN VOGUE.

Technically speaking, I have just come to my real subject.

1. Let it be clearly understood that to-day in any modern school taught by a trained teacher and equipped with all that it should have, the text-book is only an aid. The old way was the memory way, admirable for poetic gems but practically useless for life knowledge.

I grant that we learned a few facts, but while we remained thoughtless boys and girls we never applied the facts. To-day a text-book is the place to start the subject but by no means the place to end it.

2. Some knowledge of anatomy and physiology is essential—enough is taught to aid in the study of how to take care of any organ of the body just as the simple mechanics of a wagon or an engine endears that toy to a boy and make him more careful of it. This is taught to-day in practically all schools by the aid of skeletons, manikins, artificial eyes, charts, etc.

3. Comparative anatomy: In connection with the structure or use of an organ there is a fine opportunity to make a comparison of that organ with the same organ in animals, though perhaps not so much of this can be done until we reach the higher grades or the biology classes in the high school.

There are many valuable books dealing with this phase of the subject which may be used as a means of broadening the view, helping to develop an interest in zoology and a desire for studies given later in the course. Wholesome curiosity left for the moment unsatisfied is believed to be worth much because it excites more spontaneous study than any amount of talk about the wonders of the same subject.

4. Drawings: Now that so many fine drawings and diagrams are available at low prices, the study of hygiene is considered incomplete without their aid. But only simple drawings such as can be accurately copied by classes should be used. There is a psychologic reason for the use of drawings: the eye can be made to assist the brain in remembering and understanding. I may add, too, that the copying is of some small value at least in training the hand. A visual memory is of very great value for it saves much time and labor.

Closely correlated, if I may use that term here, with visual memory are interesting and picturesque verbal illustrations. Psychologists insist that much of memory labor might be saved if facts were expressed to pupils in a sufficiently striking manner. Many books, such as Mace's "History of a Mouthful of Bread" and Foster's "Physiology," abound in apt and interesting illustrations such as: "The villi, little tags, like very little tongues hang down into the intestine." "The liver is the master rag-picker of the body." "Fat is the savings bank of the blood." "Blood is the circulating market of the body."

5. Scrap Books: If we urge pupils to collect and preserve in scrap book form, odd facts about physiology and hygiene, we believe we are urging them to quicken and strengthen greatly their powers of observation. There are many sources for such material, such as scientific magazines, medical journals, and even the circulating monthly magazines. Of course, lack of time

will prevent a teacher from accomplishing all of this sort of thing that she would like to accomplish. Also many lazy pupils can never get beyond what is actually brought and forced upon their attention.

6. Recitations may be used to improve English. There is no better chance to develop clear concise English. All sciences call for sharp distinction, nice shades of meaning and accuracy in expressing of facts, as well as in the facts themselves.

7. Even mythology has its place. Such an expression as "The Tendon of Achilles" gives a chance for satisfying curiosity in the best of all ways by inducing the pupil to hunt the reference library.

8. Experiments: There is no reason why pupils should accept the statement of the books that bones in old age break more easily than in youth, or that children should stand straight so that they may not grow round-shouldered. Prove these statements by experiments. Have pupils burn a bone and discern that it crumbles into powder that is really lime, or the mineral matter that makes a bone easy to break. The statement that this mineral matter increases with age clears the text. Breathe into lime water and the clear, pure liquid becomes cloudy, showing the presence of impurity known as carbon dioxide.

I will close this paper with a summary of how physiology and hygiene are taught in one of the best equipped schools in the country—best equipped, I mean, for the study of the sciences.

In the first four grades instruction is oral on the following topics:

(1) Cleanliness and neatness, including the care of the hair, teeth, nails and face.

(2) Eating, including kinds of food, harmful effects of cheap candy, of overeating, etc.

(3) Pure air and how to breathe.

(4) Physical exercise, sleep and rest.

(5) Alcohol and tobacco and simple lessons on parts of the body, including bones and muscles.

In grades 5 and 6 an elementary text-book is used which describes briefly the important organs in the body and their posi-

tions and functions. At this stage there is added, after a review of former work, instruction in caring for bruises, cuts, sprains, burns, poisonous bites and stings. Some of the common diseases are described and the methods of treating and preventing the same. The effects of alcohol and tobacco are emphasized because of their importance at this stage.

In the 7th and 8th grades a more advanced text-book is used which includes a discussion of the skeleton, muscles, skin, digestion, food, circulation, respiration, exertion, nervous system, special senses, voice and speech. In each section regulations are suggested for preserving the health of the organ, including the special effects of alcohol and tobacco. In the first year of high school there is a review of former work with the addition of laboratory work, where possible, and practical applications to life in and about our large cities. Food and water inspection, sewerage, street cleaning and garbage disposal, medical inspection and quarantine form a part of the course. Laboratories equipped with microscopes make possible some elementary work in bacteriology. A study of the life, history, birth, and growth development, reproduction and death and the relations of animals to other animals and to us, enables the young student to appreciate the significance of the body and gives him a clear brain to adequately discharge the duties and responsibilities of life.

Where possible, students of biology and students of all conditions that make for health should be taken out to see things in concrete form. They should visit a filter plant, a garbage disposal plant, should see under the microscope some of the things that attack the human body and destroy the health. It is not in my opinion very likely that children in the grades can be made to understand much of bacteriology, but they can be made to see that there is danger in the cup. They can be taught that the bite of a fly or of a mosquito may be worse than the bite of a dog. They can be taught that expectorating anywhere is dangerous. How they shall be taught we must leave to the teacher. The live ones will teach it. The dead ones will teach these no better than they teach anything else.

When I was a boy nobody told me that old age is merely the hardening of the arteries. If we can bring boys and girls to see that physical exercise is necessary in order to keep these arteries from hardening, that overstraining the heart is not good physical exercise, that to eat too much and to drink too much is simply to overwork the organs of elimination and thus bring on various ills; if we can teach the youth how to live physically we are not only making him a more efficient engine in the great factory of life, but we are creating a disposition that will be agreeable to associate with and may perhaps prepare a better field than we realize for the dropping of spiritual seed. At what age the boy comes to the full knowledge of himself and the full vow that he will cultivate and conserve himself must depend first on the boy and second on his teachers, whether in the school, in the house, or in his environment.

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XI. HOW SHOULD HYGIENE BE TAUGHT?¹

By LOUIS NUSBAUM, Philadelphia, District Superintendent Philadelphia Public Schools.

No subject can be successfully taught unless there is a clear perception of the end in view. For years we have been groping in the dark in our teaching of physiology and hygiene, lacking a definite purpose and a definite point of view. We have been treating the subject as an independent and isolated study, unrelated to any other subject in the curriculum, and unrelated to the real things of life, while in fact no study bears a closer relation to the daily activities of the community. The subject is generally disliked by pupils and by teachers. There is everywhere a tendency to avoid, evade and curtail whenever possible. Teachers fail to observe the requirements of the law concerning the subject which is usually regarded as dry, uninteresting, and unintelligible.

Section 1609 of the new school code reads as follows:

Physiology and hygiene, which shall in each division of the subject so pursued include special reference to the effect of alcoholic drinks, stimulants, and narcotics upon the human system, and which shall also include special reference to tuberculosis and its prevention, shall be introduced and studied as a regular branch by all pupils in all departments of the public schools of this Commonwealth, and in all educational institutions supported wholly or in part by money from this Commonwealth.

Except for the reference to tuberculosis this section has been substantially the state law since the act of April 2, 1885.

Although the law has provided ample scope for the teaching of practical hygiene, until very recently it has been so narrowly interpreted that our courses of study have become conservatively fixed in a groove now somewhat difficult to break away from. In attempting to teach the subject in this limited way in all grades, the educational authorities have undoubtedly had to face a difficult problem in providing material enough to spread over an eight-year or a twelve-year course of study. This accounts for the inordinate extent of our teaching of the subject, as well

¹ Read at the Conference on Conservation of School Children, Lehigh University, April 4, 1912.

as for the necessity of persistent repetition of the same material in the several grades, due to insufficiency of subject matter. This combination of circumstances is no doubt responsible for much of the child's aversion for the subject. A prominent physician who has sent his children through the public schools of Philadelphia, and who, as a teacher, is generally interested in public education, once said to me that our elementary schools were spending more time in teaching anatomy and physiology than is given to these subjects in our good medical schools, and his feeling was that in their zeal to omit nothing, teachers were attempting to present their subject with as much particularity as most medical school instructors might.

Before discussing how the subject should be taught we ought to have clearly before us the purpose of our teaching. This seems to be twofold—first, to secure to the individual a sound body, which in turn will tend to increase his happiness, efficiency, and longevity. In an indefinite way this has been the purpose generally recognized in schools, though in treating this phase of the subject the child has scarcely been made to realize that there is a study of hygiene which presents matter of vital interest to him, and which comes within the range of his daily experience; that there are things which he can and should observe and apply for himself; that he will thereby serve his own greater good. Next, there is a social aim of this teaching. In a broad sense this is probably far more important than the other, and yet, in most cases, it has been almost overlooked, or if approached at all, has been presented in preachment or in hysterical oration. Without entering into a discussion of the aims of education we may all concede that one of its important functions is to prepare the individual for his place in the community, and in this connection he must be so prepared that he will help, and not jeopardize, the interests of the organism of which he is a part. He must aid in the perfection not only of his own happiness and efficiency but also of the happiness and efficiency of the society in which he lives.

With this point of view as a place of departure it may be desirable for us to examine some things to be avoided in order that

these ends may be attained without arousing the child's opposition, whether conscious or otherwise. The subject must be freed of technicalities which do not interest but only confuse the child. As physiology has been taught in the past we have endeavored to present a vast amount of unattractive anatomy of the human system, fitting in the functions of each organ in its precise place. Most of the anatomy and much of the physiology should be eliminated. Of what interest and of what possible value is it to a child to know the anatomic differences between arteries and veins, or to understand the action of the valves of the heart? What purpose is served by attempting to teach a child the structure of the stomach, or the particular function of each portion of the digestive tract? What folly to try to explain to him the chemical changes in the food in process of digestion, or of the air in respiration. The illustrations might be multiplied almost indefinitely.

Again, we must avoid attempting to give didactic moral instruction concealed under cover of technical physiology. Children are keen to discover subterfuge and hypocrisy. We must be particularly careful to avoid exaggeration in our presentation of the subject; and much of our teaching, particularly with reference to the effects of alcohol and tobacco, has been exaggeration, if not directly, by implication. The child is often able to satisfy himself from his own observation that much of the particular result attributed to these agencies is not a fact, and he loses confidence in the teaching given. We must avoid arousing the opposition of the child by seeming to present an indictment against those in his own home who may be users of alcohol or tobacco. Such teaching creates a community sentiment against the work of the school, and proves to be a real hindrance to the accomplishment of the desired result. If we would teach temperance in all things, we must be temperate in our teaching. It makes a vast difference whether we present to a child as a universal proposition that drinking alcoholic liquors weakens heart action, destroys digestive power, creates flabby muscles, deadens the nerves, etc., with all the minute detail of physical and physiologic changes involved, or whether we tell him that he ought not to drink alcohol because the habit of using alcohol grows in-

sensibly on one, causes the squandering of money often needed for other things in the home, is apt to lead to associating with others who indulge in similar habits, the loss of self-respect, perhaps even the planning and execution of evil deeds, and so forth, and so is a menace to the community as well as a personal sacrifice. So far as the intellectual appeal concerns the child it is apt to fall flat as an incentive to action, partly because he fails to comprehend the significance of the instruction, and partly because most children in school are at a heroic age when martyrdom even to an unworthy cause is often alluring; but the moral and social phases of the subject, properly presented, can scarcely fail of effect.

What we need at this time is to teach hygiene and sanitation with a background of physiology instead of teaching, as in the past, physiology with a foreground of anatomy. As isolated fact it is immaterial to the child whether there are two hundred and six states in the Union or forty-seven bones in the body. He used to study his history by memorizing chronological tables; his language by definition, declension and conjugation; his geography was the old-time "sailor geography;" and his physiology during all these years has been in keeping with methods now discarded in these other subjects.

We want to get as far as possible away from the teaching of physiology whose only appeal is to the intellect, and particularly to an intellect unprepared for such an appeal. We must remember that physiology is a study of the most difficult phase of the most delicate and most intricate mechanism of which we have any knowledge. Properly treated, the subject has a great big message worthy of the activities of every child whose body is full of good red blood, and the presentation ought to be such as to appeal stirringly to the interest of each one. We have before us a vast body of material with which to do a real, big, practical work, and whether we achieve a result will depend upon the way we present this material to the child. We are more completely realizing each day that teaching by example, if not too obtrusive, is one of the most effective methods of teaching, and so we are making the modern school, by its very appointments, an incentive

to sanitary and hygienic practices. We provide large airy, well ventilated, well lighted class-rooms, bringing the light from high windows at the pupils' left, and shutting out cross lights. We tint our walls and ceilings with tones pleasing and restful to the eye. We provide well ventilated lockers for the children's clothing, so arranged that they are ventilated to the outside air rather than to the class-room. An unfortunate omission in school architecture, except in a few cases, is the failure to provide means of isolating a child's clothing from that of his neighbors in the locker. Our class-rooms and corridors and sometimes our stairs are constructed with rounded sanitary corners and bases, anti-dust-collecting, and anti-germ-collecting. We are providing corridors with concrete floors and tiled walls so that they may easily be flushed out and cleaned. We are oiling floors, so as to bind the dust, thus reducing materially the number of germs floating about in the air. We are providing well lighted, well ventilated, automatic flushing toilets, so that even in private filthy or immoral tendencies are routed out by cleanliness, sunlight and decent surroundings. Schools are providing baths, healthful lunches, medical inspection, nurses' services, open air classes and cold-room classes, and everything about the modern school tends to the creation in the child's mind of an ideal of sanitary living.

Having established an ideal the school's next effort should be directed toward aiding the child in the accomplishment of his ideal. No teaching of a practical subject is worth while unless it results in *action*, and so our teaching of hygiene needs to be made of a kind which will result in deeds—not a kind to be read about only in the school room as a wonderful and mysterious something—perhaps like an Aladdin's lamp, to be dreamed about—but never to be used out of school. The most vital factor in teaching hygiene which will be preventive as well as curative, and social as well as physiologic, is the teacher. This statement may seem to be so commonplace as not to deserve mention, but in order to teach the subject in such a way as is here advocated, and as we believe to be necessary, the teacher must in no ordinary degree have confidence and faith, and enthusiasm in her

work. So far as school life permits she must be the exemplification of her teachings by her own habits of punctuality, cleanliness, gait, posture, etc., by her attention to class-room ventilation, by her own manner of dress. She must believe in the value of the child's outdoor games and be willing to enter into them herself with spirit and enthusiasm, and she must act in such way as to lead her pupils to believe that she believes in her own teaching of the work. She can do much to arouse the child's activity and interest in health problems by appealing to his social instincts as suggested in Allen's admirable work on "Civics and Health." The class opinion and the school opinion will do more to secure individual cleanliness than any amount of exhortation or appeal to the intellect merely. The step is easy from cleanliness of clothing and body to cleanliness and general care of the teeth, the skin, the eyes, the posture. An intellectual background is necessary as we advance to the somewhat more intricate problems of health in order that the child may have an apperceptive basis to which he may relate his increasing experience along hygienic lines. We might profitably make an intensive study of a few of the organs easily cared for, and easily abused, as, for example, the eyes, and the teeth, so that when the rules of health concerning these organs are violated the child will almost automatically appreciate the probable consequences of his acts and instinctively tend to correct them.

After we have aroused the pupil's interest in himself as to mere appearance, the school may by unconscious steps lead him to an interest in those other matters which concern his personal health. He will be interested in teaching which tells something about the kind of food he eats and the proper preparation of his food; or which concerns the physiologic differences between the use of ripe and unripe fruit, for example. He will be interested to know why it is important that he should use pure milk, and to know something about the effects of using unclean or improperly kept milk, meat and other foods. Some slight study of microscopy will give him a reason for desiring his drinking-water to be sterilized, his milk cans to be properly cleaned, his vegetables to be well cooked. Every child is a hero worshiper, and his

idol is usually the athlete, the acrobat, the soldier or fireman—the person who by physical prowess is able to perform “wonderful” feats. This fact forms a point of contact with his physical exercises and games in school, gives him an incentive for a proper development of his body. Competitive exercises in school in which all may participate, and in which recognition is given for physical development and improvement rather than for individual excellence, often arouse a keen interest in proper care of the body, and in physical growth and expansion. If, on the practical side, the child is brought to realize that other things being equal, employers want to engage the services of healthy, well-formed boys, and usually desire that they shall not be cigarette smokers, the incentive for seeking proper health habits looms up formidably. An intelligent, fair and honest consideration of the subject of tuberculosis, its causes, its effects, and its treatment, its prevalence, and its significance to the community, together with an exposition of the practical measures taken to combat the disease, will do much to correct unhygienic habits among the children. Once they learn the importance of plenty of fresh air, the matters of correct breathing and proper ventilation will receive due attention at home as well as in school.

Any child can be made to appreciate his community responsibility in matters of personal habit, and he can easily be led to avoid such offensive practices as spitting by a consideration of the possible consequences of such acts when generally practised. He can be led to carry into his home the ideas implanted in his mind at school and thus serve as a social agent of reform. He can be brought to appreciate the harm done by allowing filth to accumulate in cellars or alleys, by crowding workers into sweatshops, and by employing child labor in mines and amid other unsanitary surroundings, and he, collectively, will become a vital force in the future eradication of many such evils. By his own practices he will often be able to convince parents of the need of attention to decayed teeth, poor eyesight, obstructed breathing, constipation, or physical deformities. A brief introduction into the subject of bacteriology will perhaps lead him to give some wholesome advice at home as to the care of the baby's

food, bottles, etc. Some simple, straightforward instruction concerning such topics as these and their immediate effect upon ourselves and those about us will often result in the creation of a set of personal habits which, when once definitely formed, will be almost as hard to break as it is difficult to depart from bad habits once formed. My little girl is not yet two years old but she has already formed the habit of using a tooth brush twice a day. She knows when the time comes to use it and asks for it. Her teeth are not likely to suffer in the future through lack of proper care. It may be objected that this is pure habit and has no relation to teaching, but it seems to me that our main purpose in a treatment of this whole subject is to cause the child, and later the adult, to *live* right habits, to rebel instinctively against offensive and unhealthful practices, and to make it increasingly difficult to break right habits in order to perform acts prejudicial to the health of himself and the community.

If we will relate our teaching to the child's daily acts so that he will, consciously or unconsciously, seek to breathe correctly; so that he will habitually take proper kind and amount of exercise; so that he will sleep at seasonable hours, and in well ventilated rooms; so that his body and clothing will always be clean; so that his habits are formed with due regard for the health rights of others; if we can persuade him to be temperate and modest in all things, we shall be giving a kind of training which will result not only in personal health and happiness, but ultimately in increased health, happiness, and efficiency and improved morality of the entire community, we shall be educating these children not only to serve themselves and the community better, but we shall be laying up golden treasure in our future fathers and mothers.

DISCUSSION.

Dr. J. S. Grim, Kutztown, Pa.:

The prior problem of getting teachers ready to properly present courses in hygiene is the main one with those in charge of the work in teacher-training schools. If the average teacher in our schools could translate into effective teaching the ideas just given, there would be little to complain of. The normal schools of this state more than any other single force are responsible for this antiquated type of teaching health. They are the agencies especially designated by the state to spread abroad the gospel of right living;

they receive pecuniary assistance for this work and cannot, therefore, shirk entire responsibility if commendable work in hygiene and sanitation is not done in schools supplied by their graduates. A large majority of our schools, especially those in rural districts, are so supplied and there is a crying need of improvement in teaching power right here.

I desire to speak of only one reason why our methods in vogue for years have continued practically unchanged. This reason is not intended to shift responsibility, but to explain a real difficulty facing any state normal school teacher who desires to keep abreast with the best thought as to content and method concerning the work in hygiene.

Our normal schools are state institutions, but largely under local control. Our results in the class-room are reviewed by representatives appointed by the state. These reviewers or examiners, while able men, are frequently not in touch with the ideals of the several teachers upon whose work they are to pass judgment. If we were to teach according to some of the ideas set forth here to-day, the examiner who frequently wants the names of bile pigments and the per cent. of water in enamel would not only be disgusted with the papers, but the moral effect on the student would be, after the chagrin of failure had passed, to view the teacher in an unfavorable light.

The average training-teacher in this work is ready to proceed toward better things when you of the medical profession and you superintendents create a sentiment for a different type of examiner, a man who puts health first and anatomic details second and always second. Microscopic minutiae as an end will part company with interest unless the teacher is not only unusually strong but a trained biologist as well.

No trainer of teachers, however, when the bodily vigor of children is at stake, should be daunted by difficulties or waver in the performance of the right. Good instruction will tell. An examination in hygiene of a prospective teacher should in some way include the bodily habits of the applicant, the carriage, the vitality, the sanitary ideals actualized in practice.

I generally include in my course in hygiene a lecture on fresh air in the bedroom. On a certain occasion I made it a point to ascertain the locations of those rooms occupied by my students. Very early in the morning of the day following this particular lecture, I made a tour of inspection around the outside of the dormitories only to find that ninety per cent. of all the students who on the previous day had apparently been impressed did not follow their instructions on the ventilation question.

Some years ago I had a young man in class who was suffering from a bad case of adenoids. The nature and effects of these growths were explained in class. I spoke to this prospective teacher several times about his case in private, but the matter ended there. This young man is teaching school to-day, and very probably explaining all about adenoids under the extreme difficulty of talking about them because of them.

I made a test of my students' eyes one week and I met a case of eye-strain that was well nigh pitiable. I spoke to this lady about the matter; I wrote

her father, a man wide-awake in school affairs, and urged him to see that something would be done, but so far as I know the young lady has never taken treatment to this day.

I would call these three cases exceptional. They are used here as instances of the difficulty of getting even prospective teachers to act upon the knowledge gained from others.

The test of good teaching of hygiene, therefore, is not the examination test as an examination is ordinarily given. Action must follow discussion; the will must be moved toward better things; right habits of mind and of body must be formed. In the education processes it matters little whether a text-book is used or not, whether the work is done joyfully or joylessly, provided the teacher can point to cleaner and better bodies as a result.

I asked a girl some time ago why she didn't like the study of physiology. Her answer was that she "hated to study about her insides." Last year one of my strong girls fainted in class at the sight of a drop of blood. Yet our text-books almost invariably tell us to go to the butcher shop for the heart of an ox, dissect it and show the main parts described in the book. No doubt anatomic data can best be acquired in this way, but did the Indians have weaker hearts than we? They surely knew nothing of their functions and structure. This query is really pertinent in view of this girl's repugnance as regards the question of her "insides." If a compound microscope is at hand and a section of a part of the heart is shown, the peculiarity of the muscle fibers noted, is it supposed that the girl is apt to tone down her repugnance according to the degree of refinement in method used? My friend might be absent from class next day, not because she didn't know whether the tricuspid valve was on the right or left side of the heart, not because she didn't know if these muscle fibers were striated or not, but because she caught a cold, had headache or some other little complaint that comes from violating nature's laws.

If any person takes up the study of hygiene a stalwart and comely a weakling, his course has been a failure. If this study does not strengthen the arm, give tone to the nerves, brighten the eye, lighten the step and make the student less incautious as regards the dangers of infection, it is very likely that the time could have been more profitably spent on some other subject.

In our teaching of hygiene we have been spending too much time on the human mechanism—a machine that is exceedingly complex, whose fundamental operations are too difficult for children to understand even though they were necessary, and we are spending too little time on the child's environment. I have frequently detected symptoms in young people that led me to believe that they were on the danger zone of becoming hypochondriacs, resulting from unwise introspection. I have a young man at work now on our local water plant, having had a little chemistry he is testing this water for chlorine, ammonia and other substances. Following a few simple directions he is using the incubator for certain pollutions. We began with an oil stove, a galvanized bucket, a few wide mouth bottles, a good compound

microscope and a few reagents. The charge cannot be brought against the young man that he is not interested. He is working on a few of the great problems of germ life and disinfection.

If children see how and where the house fly breeds and what it does, they will not only be interested but soon create a sentiment for its extermination. There is nothing the matter with the study of physiology and hygiene. It is not dead. The teachers are frequently dead. The new course of study for the Pennsylvania State Normal Schools has this subject where it ought to have been long ago—after botany and zoology. More time is given to it. We will be in a better position to take our part in conserving child life, to arouse a more intelligent interest in the need of disinfection, and to prevent in a measure the needless waste in bodily vigor and efficiency.

Miss Sara Phillips Thomas, Philadelphia:

I believe the conscientious citizen and teacher are both awake to the necessity of the teaching that fits the child for life; we have come to a period in the history of our nation where we need to give to the children as never before the knowledge that will enable them to conserve their natural forces so that under the proper training those forces may be converted into energy and power that means the best development of the physical, intellectual and spiritual nature of the child in order that it may be of the greatest use as an individual in its relation to the home, community and state.

Because we realize the need of this conservation and training for the child just as the state and nation have realized the need for the conserving of natural forces as they have been trained to do the bidding of man for the advancement of the commercial world we would emphasize the thought that in order that the child may have the equipment for right living which comes with applied knowledge and the formation of right habits we must have the impersonal teaching of narcotics, including alcohol, which injure the health of the child, and with our many improved text-books, such as the Gulick Series, Davison's the New World Series and others, our charts and the great wealth of scientific facts and experiments, there can no longer be any reason why we should not have effective teaching of this special hygiene. Has it been of any permanent help to those who have received this instruction?

Allow me to give you a few concrete cases—a boy in one of our suburban schools came under the influence of this teaching and applied his knowledge in his home, refusing toddy for his colds, and refusing to drink alcoholic liquors when the members of his family indulged, and he has carried those principles with him through the years and proved true to them in his university course and since.

When they were celebrating the centennial of the founding of Wilkes-Barre a few years ago two thousand school children were congregated on a stand watching the parade. As the floats passed by they would sing patriotic songs and cheer lustily, but when the brewery floats came before them which were probably the most elaborate of the whole parade, the children allowed them to pass without a cheer; nor was a flag waved.

The City Superintendent of Public Schools of that city cited this as one of his reasons for his faith that the rising generation in the schools were being trained for the maintaining of good health and temperate living.

When we have such men as Dr. David Starr Jordan, Mr. George Martin of the Board of Education of Massachusetts, Dr. Sims Woodhead of Cambridge, England, Dr. Arthur Holmes of the University of Pennsylvania and others of like standing coöperating with this department that we represent, it seems to me a sufficient proof in itself that such teaching is not only needed but should be welcomed everywhere by educators and professional people.

May I quote Mr. Martin, of Massachusetts: "While education is taking on more and more an industrial phase, unless there goes along with the new form of effort constant, thorough, sympathetic instruction in the evils of alcohol, unless the generation going from the schools to the shops goes with sincere purpose to live a clean life, there is little hope that industrial conditions will be improved. The work of the schools to induce temperate and healthful living is infinitely more important than to secure skill in handicraft."

Human life and energy have increased in the three decades, we believe, through the careful teaching in the schools of the scientific truth as it relates to the problem of how to live. The death-rate per 1,000 decreased from 30 in 1870 to less than 19 in 1905.

Scientific experiment is convincing and far-reaching.

Dr. Charles W. Eliot, former President of Harvard, said in 1908: "The recent progress of medical science, largely accomplished through animal experimentation, has satisfied me that even the moderate use of alcohol is objectionable; that the habitual use of alcohol in any form is lowering to the intellectual and nervous power."

The children of the nation have been similarly convinced when they have been taught "to see light" in the same way.

Our part in this great work is to bring the many valuable helps to the teaching force whenever and wherever we have the opportunity of so doing; we are not imposing any new burdens upon the teachers but endeavoring to lighten those they already have with the bringing of this truth to them through the medium of the various sane practical helps that we have at our command, and this department of scientific temperance instruction is only trying to help equip the teachers in a sympathetic way for the work that the law rightfully requires of them and that many of our normal schools fall short in giving.

We would urge a definite course of instruction for those now studying in the Normals, and for those teachers already in the field suitable courses in our summer schools, such as the University of Pennsylvania has recently established and the University of Tennessee has successfully supported for several years and still others I will not designate.

XII.

EDUCATION FOR BETTER PARENTHOOD.¹

By THOMAS D. WOOD, A.M., M.D., New York, Professor of Physical Education in Columbia University and College Physician, Teachers College.

The teaching of hygiene in thorough and comprehensive manner should serve many important purposes in the education of young people—in helping to prepare them for the manifold phases of responsibility which life may bring to them. Hygiene instruction, however, can further no more important interest; in fact, none so important as that which relates to the supreme privilege and obligation of life—namely, parenthood. And this obligation, impending even far off beyond the years in the life of the growing child, should be recognized by parent, by teacher and by all the adult guides of the young in a very practical way as a potential responsibility for which human beings are to be trained in a far-sighted and effective manner.

We are fond of quoting Oliver Wendell Holmes—philosopher, wise physician and beloved author—as saying that the education of the child should begin two or three generations before he is born. Did he not anticipate in this significant paragraph the present-day conception of the principles underlying our ideas of eugenics, of education relating to the more direct and indirect obligations belonging to parenthood?

The child is the most valuable object in the human world.

Biologically speaking, the only reason for the existence of the adult of the species is the reproduction and care of the young. The most important business on earth is the bearing and rearing of children. And it is of all forms of business, in relation to its value to mankind, the most inadequately understood and the least well conducted. This is due in part to two causes:

1. Men are most interested in, and devoted to, the enterprises which affect themselves, their own generation.
2. For the most part they do best the tasks which appeal directly to the senses or whose results are quickly measurable

¹ Read at the Conference on the Conservation of School Children, Lehigh University, April 4, 1912.

in terms of money and in the immediate returns which money will buy.

A high quality of parenthood, however, involves many essential ingredients and the most important of them lie well outside of the factors generally considered indispensable for the ordinary and most of the unusual pursuits of mankind, unless the rather sweeping assertion is made that intelligence and common sense are sufficient for all human occupations.

Some of the comparatively rare ingredients which seem desirable for better parenthood may be briefly summarized as follows:

1. For practical eugenics it is essential that the romantic, the affectional basis of marriage should be preserved, but the sentimental and emotional elements should be supported and guided by intelligent appreciation of all the factors necessary for parenthood which will protect the biologic values, as these are as important in the human species as in any other.

This view of life, in which the interests of the future determine present conduct, will modify the influences and attractive forces which draw men and women together for marriage and the institution of the family. The dominance of this ideal will, unconsciously, even in the minds of those properly trained, tend to make those qualities, attributes and characteristics in each most attractive and desirable to the other which are most important in men and women, for parenthood, for the welfare of the future.

In the mating of men and women, money, social position, worldly expediency, the conventional and fictitious values so influential in these days, will count for much less, while organic health and efficiency, character, unselfish devotion to high ideals, to the great world interests will count for far more. In this obedience to ideals so far-sighted, romantic love will not be lost in any way, as some seem to fear. Men and women will not choose one another in cold blood simply because intelligence and reason point the way, but human sentiment and every romantic quality will be enhanced when permanent and future interests are furthered by a saner and finer human choice. Marriage in many of its most important aspects can not be controlled by

law (except in the case of the dependent classes) or by a hard impersonal science, but it may be controlled to immense human advantage through the ennobled and rationalized sentiments of men and women trained from childhood to justly estimate, almost instinctively and automatically, the vital issues of life.

2. Parenthood requires that the child, the young of the species, shall not only be provided with the conditions for physical growth, health and strength; not only with the habits of industry and skill necessary for the maintenance of life and for acquirement of material resources conditioning intellectual and esthetic satisfaction, but also with the standards of thought and conduct; with the controlling motives for action which will constitute the best preliminary training during infancy, childhood and youth for potential parenthood and all that it includes.

When human beings and families rationally subordinate their own interests as perfectly to the welfare of future generations as do animals under the control of instinct the world will have a more enduring type of family life, a more perfect type of parent-craft, than exists at present. This can be accomplished only by the development of controlling ideals which are supported not alone by reason and intelligence but by ethical impulse and religious motive. This larger altruism which protects the permanent interests of the future against the more temporary values of the present must be of the heart as much as of the head.

3. Parenthood is the provision for the perpetuation of the species—of the race. The life of the animal is controlled by instinct in the interests of the generations yet unborn.

In the scale of relative values the child is more important than the parent, but future generations are again more important than the child. Under our present conditions even when parents are devoted to their children, the child is too often considered as the end of their affectionate care, is frequently more or less spoiled and the true process of human progress is interrupted. Children can not receive too much thought and care if these are wisely directed, but they can and often do have too much misdirected attention. How often the child is subordinated to the parents' pleasure and pride. He must show off his accomplish-

ments before friends and strangers. He is perhaps over-stimulated with excitement when he should be simply vegetating. He or she is often made the burden of "conspicuous waste;" to display the wealth and indicate the social position of his or her parents, in wearing garments and decorations which interfere with the most wholesome life and activities. Often again the child is over-fed or rather given what he pleads for, whether good for him or not, and this may be while he is really suffering from deficient nutrition. Frequently the child is overworked or at least forced beyond healthful limits in school; drawn too early into social life; made to conform to conventional standards in education and society and this either to gratify his own precocious desires or to satisfy the irrational ambition of teachers and parents. All of these phases of developing life are but means to a greater end in the future even of the individual. The child should not be trained for mere personal attainment but for maturity, with reference to the power he will exert later, the influence which he will have in his own life and through this on those who come after.

The home should be considered the place where are to be developed and conveyed the precious qualities which are so vital to the continuity of the race and the progress of human society and civilization.

A higher type of parenthood will possess in itself and develop in the child a long distance view, a projected vision, an imagination which will conserve and foster future values more successfully.

How much can education contribute to better parenthood? Very little, if it involves simply informative instruction of the traditional type, the imparting of facts relating to reproduction, to heredity, to parenthood. On the other hand, education may contribute much if it be broad and comprehensive, taking account of the psychic, social and moral as well as the physical nature of the young; striving to inculcate habits of thought and action sufficient for the present and adequate for the future needs of the child; to inspire ideals and establish standards of

life which shall provide for racial and future as well as present and personal needs and obligations.

The phase of human teaching, which is, last of all and most reluctantly, being recognized as essential, appropriate and possible for education and for hygiene; for life preparation of the human individual, is that which relates to the perpetuation of life, to the reproduction of the species, to the thought and conduct which is directly and indirectly associated with this phase, and responsibility of life.

In an analysis of reasons for delay in the development of this department of education, the following suggest themselves:

1. It has been assumed, until recently, by most people, and is still believed by many, that an innocence dependent upon comparative ignorance of reproduction is desirable up to maturity.

This, in part, was due to the general belief that the reproductive instinct and its expression and influence in human life were, in the nature of things, not adapted to rational understanding, and direct instruction and guidance. In fact, much of the attempted teaching in this field has consisted in the efforts to discourage or suppress inquiry or thought on subjects relating to sex, rather than to encourage suitable, wholesome understanding and control of knowledge and impulses.

2. There has been lacking a definite body of knowledge and opinion regarding the biologic, hygienic, psychologic, sociologic and ethical aspects of sex sufficient for satisfactory education in this field.

Upon no subject of vital importance to the welfare of young people are parents, teachers, physicians and adults in positions of responsibility, so ignorant and lacking in unanimity of knowledge and opinion as with regard to sex in its direct and indirect bearings on the life of the young.

3. The atmosphere of human life, in respect to sex and reproduction has been so often clouded; the stream of human thought, of memory and conduct has been, and is so often, made turbid by various degrees of error, that many really good people fail to fulfil their obligations of instruction and guidance of

their own children or of the children of others. Again, not a few parents and teachers, through lack of appropriate training in youth, or because of temperamental limitations, are so constituted that it seems almost impossible for them to teach and guide with frankness and tact their own children.

For the protection and help of their own children, and of young people generally, from error directly or indirectly related to sex, they depend upon the carrying over of facts and principles of science and morals in a way which will insure sufficient wisdom and safety for the young at various ages.

Human experience has abundantly proven that dependence upon such an indirect and roundabout process of reasoning, and of guidance for human conduct is illogical and ineffective.

Certain positive reasons present themselves in support of the proposition that: Appropriate education with reference to reproduction and parenthood is vitally necessary in the development of every young person.

1. The human individual can find himself in relation to knowledge, impulse and responsibilities of sex, at earlier or later stages, with reference to himself or others, only by the instruction and influence of those who shall be adequate to supply the need at each stage of experience.

Instinct and intuition are not sufficient for thought, judgment and conduct, which will be satisfactory in this sphere. While conscientious application of general, moral and religious principles to the sex life may save many from flagrant error, still this form of protection is very uncertain, and altogether insufficient for the more positive needs of human life.

2. For the complete development of mind, soul, character, and personality each child absolutely needs, and hence is entitled to, a normally growing body of knowledge of the great facts and principles of reproduction; of the perpetuation of life; which is involved in the individual increase of consciousness and is related to the developing sense of personal, social, parental, and racial obligation. Parkinson, in his illuminating article on sex education in the *Educational Review* of January, 1911, has made a valuable contribution to the literature in this

field with his clear and stimulating exposition of the beneficial effects of the right kind of sex education in the gradual upbuilding in the young of mind and personality.

3. The third striking reason for sex instruction is to safeguard the young, so far as teaching may accomplish this, against the errors and disasters which come through the violations of the laws of sex hygiene.

The prevention of sex error, perversion, immorality, and disease, while important as an argument for sex education, and as a motive for sexual morality, has often been made too prominent in the discussion of this subject. The prevalence, character and significance of venereal diseases in the world involve facts of awesome import in relation to the health and morality of the individual, family, community and nation. With these vital problems, all types of responsive agencies must seriously and constructively deal.

The fear of disease, however, is not the highest nor most effective type of incentive to decent and fine living. It should be employed with all force for those who cannot be effectively appealed to on a higher plane, but the finer considerations and motives should be employed first, and to the full measure whenever there is a reasonable chance for them.

If we assume that sex instruction of the right kind is necessary for every child, then the question arises: When, how and by whom shall such instruction be given?

Without attempt at comprehensive and logical development of this phase of the subject, certain opinions are presented in somewhat categorical fashion for consideration.

The most natural and logical teacher of sex and parenthood to the child is the parent. For the parent, wise and sufficient to opportunity and needs, this may be even more a privilege than a duty. Parents should be urged and helped in every possible way to fulfil, as far as may be possible, their obligation in this field of teaching to their own children.

If parents fail in this duty to their children; if they cannot, or will not, or for any reason whatsoever, do not help their own sons and daughters in this essential aspect of preparation for

life, then it is most important that help should be given by person or persons old enough, wise enough, and situated in such a relation to the child that, in view of all the circumstances, such instruction, such guidance, such help, may reasonably and suitably be given. Shall it be admitted that, in a civilized nation, in a Christian country, in an intelligent community, there may exist a single child who will fail to receive the needed teaching and guidance related to the wonderful, the essential truths and principles; the laws of sex, of reproduction, of parenthood?

It is certain that multitudes of children are growing up without any suitable teaching in this field. A very small percentage of the children of this generation is getting, or will get, any adequate instruction and guidance in this department of life.

The children of the rich are, save for certain conventional and temporary elements of protection, no better off than the children of the poor. Orphans sometimes are more helped than many children surrounded in parental homes by luxury and negligence.

It is not proposed here to discuss the problem of class-room or group instruction with reference to direct human sex teaching in the public school beyond the expression of the writer's conviction that such instruction cannot be given until: (a) enlightened public opinion recognizes sufficiently the necessity for such instruction, and exhibits confidence in the ability of the teachers to give the instruction needed; (b) teachers are intelligent, wise and tactful enough to give such instruction and guidance successfully. Comparatively few teachers to-day are capable of meeting the obligations involved in sex education.

Such instruction should be given in universities, in colleges, in normal, and in private schools. It is very important that parents, teachers, physicians, nurses, social workers and all serious adults should in all possible ways be informed upon this subject, and make themselves capable of advising and guiding young people individually, and thus the way may gradually be prepared for the more complete and satisfactory teaching in this field which must come in the not distant future.

With reference to the individual teaching of the child wherever

and whenever this may be sensibly possible, some fundamental considerations seem important.

The average normal or typical child up to the beginning of adolescence, at least, is unconscious of sex feeling or impulse. The curiosity of such a child regarding reproduction represents the same kind of natural intellectual inquiry which the child might feel or express regarding any interesting phenomena, unless by the unfortunate attitude of elders and companions, the child is made conscious of some peculiar quality or interest attaching to this class of subjects.

There are, of course, some children, who, before they reach their teens, for one reason or another, have become precocious in relation to sex feeling or habit. These should be helped as wisely as possible according to individual needs. It is most important, however, that the simple, natural, and relatively unconscious attitude of the typical child should be preserved, not by withholding knowledge, but by giving all the instruction needed in the most satisfactory manner.

The child, up to adolescence, will be best taught first by the carrying over of the applications from nature study, and from the study of life in general, and, second, by the satisfying answers to the freely asked questions of the child as they occur. The possible exceptions to the above might be the simple directions to be given to the child regarding the routine care of the body when the age of self-care is reached.

For the young child, however, the problem is more psychologic than hygienic or moral, and no problem in education requires keener psychologic insight, or finer pedagogic skill than to know how the individual child should have the simple sex questions answered according to nature, temperament, stage of mental development and the rest. It is better not to put any of the sex books into the hands of a child, but the parent and the teacher should be familiar with the best literature in this line, and be able to give the instruction in a direct and satisfactory way.

The basis of successful sex teaching is companionship and confidence between the child and the parent, or the person who stands in *loco parentis* in relation to this phase of instruction.

The child should be most inclined to ask for information where this may most safely and wisely be given.

This need of the child for wise and tactful guidance exists up to maturity, and complete education involves for each young person the help of a perfectly qualified and sufficiently interested person during the years of growth and groping through the mazes of human development.

When class or group instruction is given to adolescents of either sex, it is most important that the primary emphasis should not be given to sexual anatomy or physiology, which may be unnecessary or confusing, or for some undesirably suggestive, but rather to the presentation of facts and values, biologic, hygienic, sociologic, ethical and economic, which will inspire youth to wholesome thought and conduct and warn them against error and harm to themselves or others. The welfare of those who are now, or may be later, dependent upon them, will restrain many young people from thoughtless or injurious conduct when consideration for their own safety would not act as an effective deterrent. More important than the knowledge of sex hygiene, then, are the motives, which at different stages of development, and for different types of young people, will control thought and action as effectively as possible.

In this connection may be appreciated the significance of title of Dr. Cabot's paper on "Sex Education," which he calls "The Consecration of the Affections." The devotion of a child to sympathetic parent or friend; the devotion of youth to a human ideal; the devotion of a young man to the imagined or actual woman whom he hopes to marry will often be the most compelling influence to hold the individual to a worthy standard of living.

XIII. EDUCATION FOR PARENTHOOD.¹

By HELEN C. PUTNAM, A.B., M.D., Providence.

We are facing certain facts: One is that parenthood does not make wise parents, for some fathers and even some mothers deliberately teach their children vice; more, by their conversation and acts, carelessly teach evil; many more, while perhaps guarding their own, will, in order to make money, degrade the children of other parents by employment and wages, by housing conditions, by entertainments and reading matter and pictures, by saloons and other details of city management; very many more parents neglect their children through ignorance, or in other occupations and pleasures. A very large part of modern social effort is struggling to undo the mistakes of parents.

We are, too, facing the facts that manhood does not always make a wise citizen, nor womanhood always an unwise citizen; that political elections do not make wise government nor wise school officials. Right education is the remedy for unwise parents and citizens of either sex; for unwise officials in state house, city hall, and school department. The crucial education is that for parenthood. Parenthood may become the nearest to Godhood.

The Creator has established certain laws for parenthood. Their violation even ignorantly injures future generations, burdening society and hindering higher civilization. Our first duty is to search out his laws, and this is done by expert students of his handiwork—man and the not-man. We call them scientists, whether they study mind, or matter, or social relations.

Our second duty is to prepare in this scientific knowledge of parenthood teachers of children—the potential parents; for the foundations of good parenthood must be laid before the event; after is too late to undo the errors committed and duties omitted in childhood and youth. Neither can we have marriages according to the laws of God until standards are so formed that only

¹ Read in abstract at the Conference on the Conservation of School Children, Lehigh University, April 4, 1912.

a wholesome person and character attracts love—the consummation of the law. The affections once engaged, even if sinning against the laws of parenthood, can be diverted only in exceptional cases and with suffering.

This preparation of teachers of potential parents has been developing during the last twenty years in certain places along definite lines, until paths well blazed by successful experimentation indicate where our efforts should concentrate. Preparing for wise parenthood is as definite a process as training for nursing, or for running a bank, or for building a bridge. As schools for nurses, one of the most beneficent undertakings of the nineteenth century, were initiated by medical women in their own hospital, so this training for parenthood was launched in the public schools of Boston by the intelligent persistence of college women, and against political indifference or incapacity or opposition is winning its way in every state.

Such courses for teachers are found in twenty or more universities and academic colleges, in twice as many special institutions and high schools, and in practically every agricultural college, for the United States Department of Agriculture has been their strong supporter. The ages of pupils range from seventeen to twenty-five or thirty. They may teach, and they may marry. These courses have minor variations, but the brief description of one will give a fair idea of the trend of all.

This course¹ takes the larger part of pupils' time for four years, the remaining being given to the usual studies—language, literature, history. The wise locating, planning, and building of a house, its wise care, the care and feeding of a family depend fundamentally on understanding certain laws of chemistry, physics, and living things (biology), and on skill in the arts of applying them to the duties of parents. These sciences are taught, not as we find them ordinarily in men's curricula, but as they directly concern healthfulness of premises, clothing and habits, wholesomeness of food, and, finally, the creation developed out of these factors and habits, character and social relations.

The central thought on which these four years of work is focused is: "Improving the individual so that future generations may

¹ Department of Home Economics at the University of Wisconsin.

attain a higher level than those preceding them." Education before this has stopped with more or less of improving the individual so that he may win "success," or "happiness," or wealth. This definitely holds up an ideal of responsibility that is infinite—future generations.

A summary of their study of social relations will be useful. It comes after two and a half years in chemistry, physics, biology, bacteriology, physiology, and household management. The development of the infant before birth from the single cell is first discussed, and as they have seen these beginnings many times in plant and animal life in their biologic laboratory, it is a simple matter to adapt that knowledge to human life. The discussion of heredity, of which they have already tested certain facts in their biology, takes up Mendelian laws of inheritance of inherent characteristics, the inheritance of acquired characteristics, the effects on germ plasm of alcoholism, syphilis, drug habits. They learn the fact that drunkards, insane, feeble-minded, habitual criminals, and sexually depraved men and women usually have children with defective nervous systems, and usually breed their kind. They learn the real significance of "good stock" on the father's side and on the mother's.

Teachers with this knowledge can do much, indirectly and directly, in mothers' and parents' clubs and with children to develop through the country right ideas of marriage to replace the unwholesome ones now so common among young people and among their parents, who should know and teach their children better.

There is a far-reaching significance in their enumeration of syphilis and gonococcus infection (not "gonorrhoea," one of its manifestations) among ordinary contagious diseases, and in their study of these statistics as well as the others in government and scientific reports, and their relation to the home; for they are not less than five times as prevalent as tuberculosis and all other contagions together, and they injure wives and children to an extent not possible to estimate. They are the cause of many deaths before birth (characteristic of syphilis); of the death, degeneracy, blindness of many infants in the first years of life; of many childless families and one-child families

(a peculiarity of gonococcus infection); of the invalidism, surgical mutilation, and death of many wives; of much insanity, rheumatism, heart disease, and other physical and mental incapacity; of much divorce, unhappiness, crime; of expenditure of large public and private funds and effort on misfortunes that can and should be prevented. They have, through slow processes, exterminated ancient nations and modern communities. If they increase through the next quarter century at the rate of the last, it would seem as if this nation, too, must decline. In my own professional experience, as in that of other physicians, the fate of married sister or friend has prevented—is preventing—marriages.¹

The students see logically that control of these contagions must be the same as control of small-pox, scarlet fever, and any other of the several that we have almost eliminated—every case must be reported to the board of health. That this so evident first step is not taken is due to the fact that boards of health, who are charged with administration of health laws, do not enforce the law requiring this done; that in the majority of states these laws have still to be enacted; that the great majority of physicians will not report these cases because they are almost always connected with illegal sex relations of men which they wish concealed; and that city governments, through their courts and police, permit these dangerous men to pass freely about in the community and into the homes where prostitutes never go, because of the established idea that men may lead irregular lives not permitted women—the so-called “double standard of morals.”

Education for parenthood necessarily brings with it the insistence that government shall protect marriage from these contagions and their inseparable evils; and as government does not do so, never has been known to do so, possibly never can do so as the great majority of men claim, women in various countries in increasing numbers, and with the coöperation of many of the

¹ For the above and additional facts see Chapters XV, XVI, XVII, of “Medical Gynecology,” by Dr. H. A. Kelly, of the Johns Hopkins University; “Social Diseases and Marriage” by Dr. Prince A. Morrow (Lee Brothers & Co.); Educational Pamphlet No. 3, issued by the American Society of Sanitary and Moral Prophylaxis, 29 West 42nd Street, New York (a reprint of one of Dr. Morrow’s most important chapters).

best men (but invariably fought by saloon, gambling, and other vicious elements), are securing the political right to protect their own and the children's lives according to their duty to the laws of God. There is no doubt in the minds of keen students of social relations that political dominance of sex is wholly an evil, and to both sexes; that the only right dominance is wisdom, of which education and experience are giving women full share with men. Civil law made by men not based on biologic law which women are learning ends in disaster.

The wise intelligence of mothers, of professional women in the ministry, in law, in medicine, in sociology, and in education; laboring women with their sense of wronging their children when they go out from the home to earn their food and roof; and the other mothers who see their dearest, without legal protection or redress, contaminated, body and soul, out of the under-world whose pollution reaches all classes; these are concentrating on the demand, and are winning it. It is an indispensable step toward the establishment of right sex relations.

After this study of heredity comes study of physical and mental development of child and adolescent; the influence of city life and country life on development, with school statistics of the rates of growth of boys and of girls; the kind of education adapted to different kinds of children; infant mortality—the effect on it of women's work outside the home, and of different kinds of occupations of mothers before the child is born; governmental and social efforts to reduce infant mortality; the pension system for mothers, paying a small sum enabling them to stay at home and nurse their babies, thus saving citizens to the state, as governments have hitherto pensioned soldiers; the effects of institutional care of babies and children on death-rate and on development; the cause of reduced birth rates, and the duty of the educated in the preservation of the race; children in industry, and its legislation; the housing problem; child psychology; children's vices; education of the will; a study of nervous states and their hygiene.¹

¹ For fuller account of this and other courses see reports of Education Section, 1910 and 1911, American Association for Study and Prevention of Infant Mortality. Address 1211 Cathedral Street, Baltimore. Each, 20 cents.

Such topics in some schools are, so far as practicable, made vital by coöperation with neighboring nurseries, hospitals, or other institutions; and there are of course children's classes in the practice school wherever teachers are trained. One has to regret that there is not yet a course for men complementary to this in some of its details. Many of the universities and colleges giving these courses have in the winter extension courses of a week or more, which are taken by thousands of farmers' wives and other women. In elementary schools competent teachers have organized many hundred classes of mothers and of parents, where study of and home coöperation in the education of their children is steadily being developed.

What some teachers are doing with children themselves can best be indicated by a few typical instances. Teachers of the youngest grade, in their study of flowers, birds, and other animals, speak of mother flower or animal, father and baby flowers and animals, tracing likenesses between parents and young, comparing their ways with people's ways, establishing thus indirectly the consciousness, or, better, sub-consciousness that every life is from fathers and mothers, from eggs or from the mother's body, that there are fertilized and unfertilized seeds, that heredity and environment are factors in life—not using, however, these polysyllables.

For children a little older, nine to eleven, a teacher who had studied biology began in the seventh grade a "continued story," "The Story of the World We Live In." The "first chapter" was brilliant chemical experiments illustrating gases, vapors, condensations into liquids and solids, some of the curious properties of water. In the following lessons they saw simplest plant life, yeast cells, through a microscope, and learned how they multiplied. They took for their text: "The two objects of every living thing are to perfect itself and to reproduce itself." This text was repeated, and formed the line of study for every plant through the year—how it grew and how it multiplied. The next year, in the last grammar grade, the continued story used the same text for every animal studied, how it grew, perfecting itself, and how it multiplied, giving as much attention to reproduction (which instructors usually omit) as to other functions.

It is to be remembered that the instructor was a student of biology, and the teaching was from this viewpoint.

In answer to my question, "Do you think you have taught anything of clean living?" she replied emphatically, "I am sure I have. There were two boys two or three years older than the others. They were precocious and unclean-minded. It could be seen in their faces in the beginning. I had no private talk with them, but at certain points I took special pains to have them understand. Before the course was over there was a complete mental revolution, and moral, too, I know from their manner. They are clean, good boys now, and twice as bright."

There is a grammar school in the tenderloin district of a large city. The sights and sounds of the district educate the children more hours in the year than the school. The innocently-expressed ambition of the little girls was to be a "fancy lady," whose idleness and gay dresses were more attractive than their toiling mothers' lives. The little boys, too, admired the "fancy ladies." The teachers, startled by the children's standards and unconscious vulgarity in many ways, begged the superintendent of schools to have a physician talk to them. He did not say, as some: "Let it alone. You will only set them to talking and make matters worse;" nor as another said: "You are a dirty-minded woman yourself or you wouldn't see such things." He asked a medical woman who had been a successful teacher before studying medicine to give a talk to the girls; and he asked a medical man to do it for the boys. Each, ignorant of the other's action, refused, saying that one talk from a stranger would do harm, not being enough to cover so much. The medical woman offered to give twelve or fifteen talks, and include what was wanted. When she had so discussed general health habits that she had interested them and changed their mental attitude toward their bodies and toward life in some ways, she then safely discussed sex and its duties. After a few weeks of this course, the boys sent a petition to the principal: "Can't a doctor give us talks like the girls?" The medical man then gave three talks on general hygiene, and finally one on sex, beginning with laws and phenomena in plants and animals, so placing human law in relation to universal law.

The results of this experiment were highly satisfactory. Conduct, conversation, and ideals were for the time changed among these unfortunately surrounded children, but it would be a miracle if these few hours could undo the constant influence of a "red light" neighborhood—environment such as every large city permits for some of its children, centrally located for the sake of business, yielding extra high rentals to people of large means who own such real estate, and are not infrequently found among subscribers to philanthropies and to churches. Nearly every genuine attempt to break up such resorts is halted by the discovery at the tax assessor's office that the landlord or landlady is a person of social consideration. These reason: "My property is my own to do with as I please. If they pay their rent, I can't meddle with their morals"—the philosophy that a distinguished student of immoral women tells me is theirs, "My body is my own to do with as I please. I can earn more money this way. I will not work in a factory." Prostitution is largely an economic problem with several sides. These school authorities consider this as the handling of an emergency, not as what should be done regularly. They are developing systematic instruction in nature study and hygiene as rapidly as capable instructors can be found.¹

In a large city is a teacher of biology for children from twelve to sixteen, who year after year for nine years, has taught in her classes of both boys and girls how every plant and animal they studied not only grew, but how it multiplied. She says enough, but no more than enough, to set them almost unconsciously to reasoning from these to laws of human life. They actually demonstrate principles of heredity while cross-fertilizing flowers, and of environment in other experiments. This instructor and other biologists are increasingly including the discussion of contagions which are due to minute vegetable and animal organisms, "germs;" and in the list of commonest contagious diseases enumerate syphilis and gonococcus infection along with the others, perhaps giving a few facts and statistics concerning each, without discriminating

¹ Dr. Zenner gives a full account of this and his further personal experience in talking to pupils in a little book: "Education in Sexual Physiology and Hygiene" (The Robert Clarke Company, Cincinnati). He makes no attempt to cover the subject, but contributes what we specially need just now, "clinical evidence."

against these in particular. This is the honest and clean-minded course.

In the last few years former pupils who have become parents, and others have told her gratefully what an illumination and help this knowledge had been to them. She says, as others also, that quite without her anticipating it in the beginning, the under-current of vulgar talk among the children spontaneously ceases as they advance in the study. The normal curiosity about sex and new life, as much a part of human nature as is love for pleasure, is directed in open channels where it can be enlightened healthfully, without defilement. A well-known educator of large experience once said to me, reflectively passing the problem through his mind, "I know no man in the schools of my city and but few women that I would be willing to have talk to my boy and girl on sex matters." "Would you be willing to have them take a sensible course in elementary biology?" He replied promptly: "I not only would be willing, but glad to have that."

These teachings, so rapidly outlined, agree in certain very important points, and demonstrate certain very important principles:

1. Not all teachers should undertake this, but only those prepared to teach the elementary science of living things, and with understanding of elementary sociology. Such do little with books or talks. Pupils see and handle plants and animals, watching life processes *with minds that are guided to search for law*.

2. Direct sex instruction in class is not given even in emergency until there is a well-laid groundwork in the renewal of life in all nature; a scientific setting or background, with a scientific vocabulary, that eliminates the vulgar attitude toward facts of sex inevitable when they stand alone.

We have made the deadening mistake of omitting from education all direction of the duty of passing on the torch of life entrusted to each for a few years. Education has been limited to self-preservation. Our sins of omission cannot be undone. The sorrow and suffering have been and left their blight.

We are in some danger, in our haste to get wise, of going to

the other extreme, and over-emphasizing what is called "sex hygiene." This can hardly do more harm than altogether omitting it; but agitation for "instruction in sex hygiene," and for societies of "sex hygiene" seem over-emphasis. What we should agitate for and have organized effort to secure are:

1. Compulsory control of syphilis and gonococcus infection by boards of health. A very few societies with this object exist, working as definitely as do our many anti-tuberculosis societies on their problem.

It seems desirable to urge at this point that those physicians who use the unscientific names "venereal" or "shameful" or "sexual diseases" hinder progress in prevention very greatly. Many of the laity, especially educated women, are pursuing the correct method—declining to adopt or to otherwise encourage the obnoxious terms; but, instead, using the technical names, syphilis and gonococcus infection, in which there is no suggestion of evil, although some of the victims like some of the victims of diphtheria may be evil. Or they use the collective term social diseases, being mindful of the fact that tuberculosis, typhoid and others are also social diseases, diseases encouraged by our present social practices.

Some of the reasons for avoiding a nomenclature suggestive of immorality are: (a) Syphilis and gonococcus infection may be acquired without sexual irregularities as, for example, from the common cup or towel, from kissing, handshaking, or other innocent contact, or by marriage or by birth—all these being also agencies for communicating other contagion. Neither affects the reproductive system exclusively, both being systemic diseases attacking brain or other parts of the nervous system, bones, eyes, thoracic and abdominal viscera, and resembling other systemic diseases enough to cause errors in diagnosis, syphilis being occasionally mistaken for tuberculosis in its early stages, or for malaria; and both passing under other commonly used names (for example, "heart disease," "rheumatism"), neither being found, with rare exceptions, among causes of death recorded by health departments, in spite of their general prevalence.

- (b) The terms are obstructive, for, until we cease to stigmatize

patients (often unjustly as well as justly) we cannot secure enforcement of laws sufficiently effective to control the pale spirochete and gonococcus as we control other specific micro-organisms.

2. Efficient teaching of home-making ("domestic science," "home economics"), especially in "continuation schools" or classes for our twenty million young people between sixteen and twenty-four years of age, now in no schools. These are strategic years, when home-making instincts are waking.¹

3. Sensible teaching of the science of living things ("nature study," "school gardening," botany, zoology, elementary biology) as a compulsory study in elementary and secondary schools.

With these must be school environment and practices that grow healthier children to become healthy parents, and that are essential factors in "teaching hygiene." Our schools encourage tuberculosis, nervous disorders, and some other ills whose prevention is outdoor air and more occupations that increase the circulation, which means stronger hearts, lungs, and other vital organs. If home-making, gardening, and industrial training are wisely developed, they will improve the health of parents as well as their efficiency.

Schools should aim to create a national consciousness, a sub-consciousness developing through childhood, that life is a trust received from many who have gone before, to be guarded and bettered in one's turn, and passed along to many after—a simple and easily demonstrable supplement to the more vague idea of God, stimulating an early sense of responsibility that is to moral life what physical exercise is to bodily life.²

¹ See Continuation Schools, Education Section, American Society for Study and Prevention of Infant Mortality.

² Further discussion of school work is in Educational Pamphlet No. 2, "For Teachers," published by the American Society of Sanitary and Moral Prophylaxis, previously mentioned. Important popular discussions of education for parenthood are in the Report of Conference on Prevention of Infant Mortality, 1909, American Academy of Medicine, Easton, Penn.; also in the Reports of the Association for Study and Prevention of Infant Mortality mentioned in previous foot-note.

XIV.

INDIRECT METHODS OF TEACHING HYGIENE.¹

By C. E. EHINGER, M.D., West Chester, Pa., Physical Director State Normal School.

In going over the subject assigned me, I find some difficulty in determining exactly what constitutes indirect methods.

There can scarcely be any doubt on this point under some headings, but it seems quite evident that what would be considered indirect methods by one would seem essentially direct by another. I take it, however, that the question of the implied motive of the instructor and the conscious attitude of the pupil must, in the end, determine this point.

All those who have had experience in teaching hygiene to young people will have noted the indifference and even contempt which they often manifest towards the most painstaking direct efforts at instruction, which fact would seem to justify a more frequent use of indirect methods; and certainly the success sometimes achieved in presenting this subject indirectly, warrants us in more frequently resorting to it.

The apparent apathy of young people to matters pertaining to their health is to a certain extent natural and proper and must not always be taken as an evidence of perversity or inherent antipathy to the whole subject.

To the artless and inexperienced mind of youth the question of disease or physical abnormality has no legitimate place in the scheme of life. Doubtless some of the dislike of the youthful mind for this subject is owing to its improper presentation and more especially to the enlargement upon the negative side, to undue emphasis on diseased processes, the dark side of the picture being overdrawn and kept in the foreground. The fact that indirect methods should be suggested as a topic for discussion at this Conference is evidence that direct methods have sometimes failed of their purpose.

I will touch mainly upon phases of teaching which are the

¹ Read at the Conference on the Conservation of School Children, Lehigh University, April 4, 1912.

outcome of my work and experience as a physical director, and I shall emphasize more particularly the possibilities in the recreational and competitive fields.

The opportunities of the physical director and athletic trainer to press home hygienic truths in a palatable form are indeed great.

This phase of the subject naturally raises at once the question as to the desirability of the physical director teaching hygiene by the direct or usual methods. The matter has been discussed more or less for a number of years in physical education circles, and while the status of the physical director on this point is not definitely settled by educational authorities generally, I think I may say with confidence that the consensus of opinion in our own field is unquestionably in favor of his assuming this branch as a coördinate part of his work. There can scarcely, however, be any question as to the desirability of his teaching hygiene by indirect methods in the course of the duties now assigned to him.

It seems quite pertinent to the subject in hand to devote a moment to the relation of physical training and athletics to hygiene in general. No other instructor has so many and such unique opportunities in this field as the physical director, trainer and coach. His relation to students and our youth generally affords unsurpassed advantages to make effective appeals for their physical betterment; not even the medical adviser knows so well their physical needs, since the information obtained through physical examinations and activities in the gymnasium and on the field, give him the key to both his pupils' interests and needs.

The interest and value of athletics is due to the fact that they are the outgrowth of fundamental instincts and not the result, nor merely incidental to civilization or formal education; they are the expression of the natural play tendencies of all youths. Athletics are but the play instincts more matured. Most, if not all, of the great evils so much deplored in athletic activities have arisen because we have failed to recognize that these are not only the legitimate but one of the most important of the educational processes, and success in remedying these mistakes

will depend on the recognition of their true end and aim, and their relation to education.

Dr. Wm. W. Hastings has well said that "physical education as a science is a department of hygiene," and it must be obvious to every intelligent person that the emphasis of physical education should make for general health and organic vigor.

The childish interest in play, the youthful addiction to sport, and the adult appreciation of the value of health have nowhere such common meeting ground as in recreational and competitive activities, and it is through such avenues that we should be able to make our teaching of hygiene effective, to impart the much needed knowledge in a way that is not only interesting but highly pleasurable. This is the natural process—education through play, the application of play instincts to a maturer field.

It is, indeed, encouraging to note that the hygienic aspects of physical training and athletics are becoming more evident and are being increasingly emphasized. The fact that athletic success depends largely upon physical fitness must be the keynote of hygienic teaching among young people, and this will be both the opportunity and the means by which the physical director shall meet the needs of his charges. That much, and perhaps most, of the best teaching will be by indirect methods is my conviction. It is not always so much what is said, as how and when it is said, that makes the lasting impression, and here the modern physical trainer can profit by noting some of the devices resorted to and the reasons assigned for doing things, by the best class of the old type athletic trainer. Most of these men have been close students of human nature, keen observers, quick to pick out the strong and weak points of youth.

If the modern physical trainer and hygienist will add to his scientific knowledge the acumen and tact of his predecessor and competitor, his success in turning out "winners" will be quite as great, and render him a more potent factor in instilling hygienic truths and shaping the ideals and ambitions of our young men. Besides the inculcation of wholesome ways of living, the formation of correct habits and the avoidance of deleterious

things, he may be the means of developing good community or institutional feeling, a spirit that has high and sensible ideals relative to health matters. I believe it is within his power to create a veritable atmosphere of health that will far exceed in value the results of the ordinary direct method of learning mere facts.

I recently had the opportunity of observing several such instances. I paid visits to a number of large boys' preparatory schools to study the methods in vogue in the physical departments. Without exception the indirect method of teaching hygiene was most prominently and successfully employed. In two instances the head masters gave it as their unqualified opinion that the physical department did more to elevate the moral tone and physical condition of the student body than all the others combined.

At one prominent boys' school in a New England state, having between three and four hundred students, a condition prevailed that was most ideal in these particulars. One man had the whole physical and athletic department under his control. No coaching or teaching was done by outsiders. All training, coaching and hygienic instruction was under the supervision of the physical director and student-assistant—one graduate assistant doing some work with the track and baseball men. Almost every student in the school was actively engaged in some form of athletics, and all took prescribed indoor work during the winter months when little outdoor work was possible.

A stay of two days here revealed many facts relative to the efficient and ingenious methods of holding the boys up to high moral and physical standards; and most of these results were accomplished by indirect methods.

The school spirit, interest in and loyalty to school affairs, and the intellectual, physical and moral standing of the students was as fine as I have ever seen. This was perhaps the more remarkable since many of these boys were from wealthy families and had not always been accustomed to strict, simple, systematic living and the more or less rigid school discipline. One matter in personal hygiene which greatly interested me was the instruc-

tion given for postural defects. All those who stood badly or had marked physical defects, that were likely to be remedied by physical effort and individual initiative, were put on what was known as the "stand-up squad" and compelled to take vigorous physical exercises designed to correct their defects. They were given instruction along this line in addition to the exercises and nothing exempted the fellows from these except marked improvement such as was clearly apparent to the director and other members of the teaching corps. Any who "graduated" from this squad and relapsed were again consigned to its ranks. All spoke in the highest terms of the value of this method.

The indirect hygienic instruction given to men on the football and baseball field, on the track and in the crew and at the training table constitute a body of useful information that may be drawn upon throughout life. And if designed with reference to the future as well as to immediate use, will inevitably result in great good.

It has been well said that: "Sportsmanship is the application of the golden rule to athletics." Surely few educators would gainsay such a statement, and if this is the utterance of an important truth, why should we hesitate to make concerted effort to exemplify it on the field and track, and who can better undertake this than those whose business it is to prepare for and oversee these activities.

One of the great reasons why progress along these lines has not been more rapid is the tendency to subordinate the real physical needs and recreational activities of our youth to the competitive and spectacular end of sport. This undue prominence of what should be incidental, and the disposition to separate the physical department and the athletics, has retarded progress. They properly belong together and should be united and administered by one head.

Dr. Hastings in discussing the qualifications and preparation of the physical director says: "I maintain that he should be called the director of hygiene and should have the training of the doctor of hygiene rather than that of the doctor of medicine, or simply the director of gymnastics. The only reason

physical education has nominally absorbed all these functions is because school hygiene and the office of the director of school hygiene have not been created until recently and have, therefore, not asserted their legitimate place. Every physical director who is really up-to-date, is virtually a director of hygiene."

Dr. Thomas A. Storey, of the College of City of New York, in discussing the departments of school hygiene and physical education, expresses the same thought in these words: "The fields of these two lines of work have broadened and overlapped until to-day they coincide; there can be no complete scheme of physical education without school hygiene." And it is worthy of note that Dr. Storey holds the position of "Professor and Director of the Department of Instruction and Hygiene" in the institution named. If all the formal, direct lessons in hygiene could be further emphasized and reinforced indirectly through the medium of some selected physical activity without any suspicion on the student's part that they were receiving instruction, how much more effective would be the results.

It seems to be generally conceded that hygienic instruction has failed because it does not appeal to the interests of the student. This being the case all aids which make their appeal through avenues of recognized interest, with a minimum of emphasis upon the utilitarian aspects, deserve to be developed and encouraged. It should be understood that this does not contemplate the doing away with direct or formal methods.

In conclusion, without attempting to further multiply examples in this or other fields, it may be said that indirect methods of teaching this branch have a distinct and important place in the educational curriculum, and should be used to supplement and apply the facts acquired through the ordinary methods; they meet a need which formal teaching fails to supply.

XV.

MEDICAL INSPECTION OF SCHOOLS FROM THE POINT OF VIEW OF THE HEALTH OFFICER.¹

By J. F. EDWARDS, A.M., M.D., Superintendent, Bureau of Infectious Diseases, Dept. of Public Health, Pittsburgh, Pa.

Conspicuous among present-day measures for the conservation of health are those directed toward infancy and childhood. Society is organizing to prevent waste at the threshold of life and its united effort has found expression in the American Association for the Study and Prevention of Infant Mortality, whose initiation took place under the auspices of this body.

Health boards recognize that the prevention of infant mortality is one of its most important fields of activity, and communities point with pride to their decreasing death-rate at this period of life.

In medical inspection of schools and school children, the health officer recognizes the most favorable medium for continuing the work of conservation through the most important years of growth and development. Indeed, he looks farther than this and sees in the schools his hopes of ultimate success in the control of preventable diseases and the establishing of right conditions of living.

The health officer of to-day realizes that his work has a positive and constructive side as well as a negative or repressive one. The enforcement of quarantine laws, the abatement of nuisances and similar *ex post facto* activities, which not long ago were considered the chief functions of the health officer, though necessary when occasion arises, represent work that can, at best, be only of temporary value. Even when his machinery for the control of transmissible diseases is working smoothly, when his measures for the correction of environmental conditions which exert an unfavorable influence upon the health of the community, are carried out, when food, water and milk are no longer a menace, when he has done what he can to save people in spite of themselves, the health officer realizes that further progress and real

¹ Read at the Conference on Conservation of School Children, Lehigh University, April 4, 1912.

success depend upon the knowledge and consequent coöperation of those whom he serves. He seeks to make his department an educational force in the community, but he finds that the education of the present adult generation in matters relating to health is difficult. The mass of the people have their ideas and prejudices firmly fixed and half truths, built upon custom and tradition, are held tenaciously. It is for this reason that he turns to the school children of to-day, hoping that they, under the proper guidance and instruction, may acquire knowledge of health matters that will insure intelligent coöperation in public health measures and in habits of right living. This, however, involves the positive side of health education and health supervision, rather than the negative side of inspection alone.

Medical inspection as practised in the majority of instances to-day must be looked upon as an expedient, made necessary, however, by conditions existing to-day in our schools and among our school population, but one that will be substituted by medical supervision, when the parents of tomorrow shall have been taught the principles of hygiene and right living as they should be taught in our schools and when schoolrooms, school curricula and the home itself no longer act as predisposing causes of disease and physical inefficiency. While working toward this ideal, however, we must do what we can for the present generation by medical inspection and supervision. This is necessary to-day and large expenditures of money by the state for this purpose are justified, because of the fact that a large proportion of school children suffer from preventable and remediable diseases or defects that have been unrecognized by their parents and for this reason have not received the necessary attention.

Because of transmissible diseases, these children menace both the health and the school attendance of other children, and, because of these and the non-communicable diseases or defects, their own physical development is retarded and they do not receive full value from their school course. Of no less importance is the medical inspection of the schoolrooms, the school environment and school methods. Not only must the children be protected from infection and their physical defects be recognized

and corrected as far as possible, but the influence of the school itself must be such as will conserve and promote their health.

It is apparent that many problems are involved and that upon their proper solution depends the health of the school child and the future physical vitality of the race. Both the health and the educational authorities are alike interested. They may look at the problem from different viewpoints, one emphasizing the improvement of health because this would lead to greater mental efficiency, the other emphasizing increased physical efficiency because of its bearing upon public health. The immediate object is the same—the health of the child. Whether the educational or the health authorities can best do the work has been the basis of much discussion. Either one can do it when full coöperation exists, while, where this is absent, no system can meet with complete success. There can be no division of responsibility. It would be both unsatisfactory and expensive to have two sets of officials engaged in inspection work. One or the other must control and furnish the machinery. It matters not to the taxpayers who are the controlling authorities. They must, in either case, foot the bill. It is ultimately a question of efficiency. In the United States the question of school medical inspection has, in most instances, been one of expediency governed by local conditions, depending upon the readiness or equipment of one or the other authority to do the work. The practice is nearly equally divided with a probable tendency toward control by the school authorities themselves. It is not the purpose of the writer to produce arguments in favor of control by one or the other authorities.

The health authorities in every community have well defined duties to perform, but to many questions relating to public health they have somewhat the same relation as the modern charity organization society has to the various philanthropies of the community. They must see that health measures not necessary to be specifically under their control are organized properly and they must act as a clearing house of information and guidance, the object being to see that health work is being done efficiently, without duplication, and in correlation with its own direct ac-

tivities. In the majority of instances the initial activity of medical inspection has been directed toward the control of transmissible diseases. It has been frequently stated that the schools offer a favorable medium for the spread of infectious diseases, especially those commonly known as the contagious diseases of childhood. Some recent studies would seem to indicate that the importance of the school sessions as a causative factor in the prevalence of these diseases has been overestimated. Be this as it may, this negative phase is of much less importance than the fact that the schools offer a vantage ground for the control of such diseases. Not only are cases among the school children themselves excluded, but other unreported cases in the family, or in families that have no school attendants, are detected and brought under supervision by the health authorities.

Through the school attendants, combined with home visitation, and by a well organized intelligence service, practically the whole child population is brought under a surveillance such as could not be established except by school inspection. A number of such unreported cases, especially of measles and whooping-cough, occur, largely due to the fact that these diseases are not regarded as serious, especially among the poorer classes, and for this reason a physician is not consulted. The same is true of mild cases of diphtheria, which are thought to be cases of simple sore throat or tonsillitis. Where medical inspection exists, the presence of an epidemic does not necessitate the closure of the schools. Diphtheria offers the best example of the possibility of efficient preventive measures. The taking of cultures will serve to eliminate danger from school attendance where this disease prevails. Medical inspection, by preventing infections, not only conserves the health of the school children and of the whole child population, but also serves to prevent loss in school attendance. While it may be assumed that this is the chief function of inspection by boards of health, and it is generally conceded that this work can best be done by these bodies, on account of the legal power over transmissible diseases expressly vested in them, this phase of inspection is of even less importance than that for the detection and correction of non-contagious

diseases and developmental defects, and of faulty school hygiene. This, however, has not appealed as strongly to the general public as inspection for contagious diseases. This has been very generally recognized to be a necessary measure of community protection. In many localities, inspection for contagious diseases is the only form that has reached a considerable degree of completeness and, in some instances, forms practically the only activity. As judged by available reports, this phase occupies about 75 per cent. of the time and energy spent in inspection. Such inspection, though valuable as far as it goes, does not have as far-reaching effects upon the health of the school children as the correction of defects and the placing of the child in the proper hygienic environment while at school, combined with the intelligent adjustment of the school studies to the capabilities of the child.

While the statistics relating to contagious diseases may be regarded as definite and reliable, there is a lack of uniformity in statistics of other diseases and defects.

With the progress in medical inspection that now obtains in the United States, there should be a greater uniformity. The time has come to have some standardization of scope and methods. There is a vast amount of literature on medical inspection, yet seldom are reports and statistics comparable. There is need for the correlation of statistics so that practical results that may serve as a basis for prevention and correction, may be deduced therefrom. It accomplishes but little good to pile up statistics unless these be combined in such a way as to throw light upon the causal conditions. If, for example, we have statistics of malnutrition we need to know what are its causes whether simply due to under-feeding, to home conditions or to bad teeth. Neither are there definite standards of sanitary requirements for school buildings. Opinions differ greatly as to what constitutes physical defects, concerning which action is to be taken.

The greatest variations exist between the statistics of different localities. This variation is greater than could be accounted for by difference in physical development and is most probably due to difference in standards. While it is undoubtedly true

that sufficient statistical data is available to emphasize the need of inspection, it would be difficult to form from them any satisfactory conclusion as to the physical condition of our child population as a whole. Hence, the keeping of records becomes a matter of the greatest importance. We are greatly in need of statistics which bear upon the physical status of our whole population. No such data is available for the United States as exists in some European countries, where registration of vital statistics has been fairly complete for a long period of years, and where, also, compulsory military service affords an opportunity to collect data relating to the physical development of a large part of the population. In the United States medical inspection by statute can, at best, be a concern of states as the largest unit, but at present, medical inspection in any comprehensive way is enjoined by but few states. In the majority of instances it is a matter of smaller units, of cities and towns. There is no reason, however, why these should not employ methods found by practice to be the best. While adopting the standards already reached, every department of medical inspection should also be a bureau of investigation and research in problems of health and development in their relation to the science of pedagogics.

The work of the trained physician, one who has become an expert in problems relating to the school child, is essential in our modern scheme of education. Something more adequate than ordinary routine inspection is necessary, however, in order to secure information upon which may be founded an effective system of education, which has for its basis the physical well-being of the child. It has been well said that "mental development without a true physical equivalent is unstable and undesirable." The child whose brain is developed at the expense of his body is, from the point of view of society, an expensive luxury.

Medical inspection is necessary in order that the teacher may be advised as to what should be the daily demands from each pupil and in order that his studies may not overtax his capacity; and, on the other hand, that the idler may receive the necessary stimulus.

When children are excluded on account of transmissible diseases, much stress is laid upon the necessity for continuing exclusion until the danger period for others has passed, but it is also the province of the inspector to consider the children themselves, whether they can resume their studies without injury to their own health. Many parents lose sight of this consideration and send their children back to school, where, in their attempt to make up for lost time, their health becomes permanently impaired.

Scarcely secondary in importance to the medical inspection of school children themselves is that of the school environment. Much of the beneficial effect of inspection of the school children will have been lost if the sanitary and hygienic conditions in the schoolroom and on the school premises are such as will impair their health. There is no class of public buildings in which sanitary requirements and hygienic fitness has been more disregarded than in some of our older school plants. The Committee on Medical Inspection of the American Medical Association quotes a writer as saying that the value of the public school buildings in America is \$700,000,000 and states: "One-half of them are so abominable that they should be torn down forthwith and a quarter more of them should be reconstructed."

The committee makes the following recommendations:

1. The endorsement of certain standards and requirements in the planning and maintenance of school buildings and grounds by state and national educational and medical organizations.
- 2 The enactment of legislation which will define these standards and insure the erection and maintenance of school buildings in accordance therewith.

The most common hygienic defects found in the school buildings themselves are inadequate ventilation, improper lighting and faulty location and equipment of toilet conveniences. Schoolrooms are often overcrowded and when this is combined with insufficient provision for change of air, the result is disastrous to the health of the child and forms the chief cause of morbidity among our school population. The problem of ventilation of schoolrooms is extremely difficult and in its solution the educational authorities need the advice of the physician or the sani-

tary engineer. In warm weather the problem is simple, needing only the opened windows, but in cold weather it is more complex, the difficulty being largely a question of heating and humidity. To approach the proper standard, each child should have at least 20 square feet of floor space, 300 cubic feet of air space, with a change of air every eight minutes. During recess periods the windows should be opened, so that there may be a complete change of air. Dust should be eliminated as far as possible by proper cleaning methods, both of blackboard and floors.

The necessity for open air schools for certain classes of children is recognized to-day and has become a matter for the attention of educational and health authorities. Midway between these and the ordinary schools are what may be termed cold room schools where windows are kept widely open in all seasons. These are much less expensive to maintain and are available for every community. The supervision of school appliances is a necessary part of inspection. The desk should be suited to the child. Many instances of faulty development may be traced to improper positions assumed during school hours.

The physical characteristics of text-books is a question of importance as affecting the vision of school children. The kind of type, the width of line and margins and the finish of the paper are all questions that need the careful consideration of the student of school hygiene.

The common drinking-cup is a prolific source of infection and must give away to bubbling fountains or the individual paper cup. Schoolbooks and pencils may be a source of infection; the latter at least should not be used interchangeably, and books used by a pupil excluded on account of one of the contagious diseases should be destroyed, for we yet lack a satisfactory method of disinfecting books.

The hygiene of the schoolroom needs constant supervision, for the children are compelled by the state to attend school and, therefore, it should provide them with the most approved hygienic environment.

One of the most important phases of medical inspection and supervision of schools and school children is that which links

it to the home itself. Medical inspection loses much of its efficiency unless its machinery be extended to securing the coöperation of the parents in giving the children the necessary attention for the diseases and defects found by inspection. The influence of the school should go further than this and be exerted toward the correction of living conditions that affect the children injuriously. For this work the school nurse is essential, and in every complete system of inspection, a force of nurses, trained as social workers, is necessary to carry out the work to ultimate completion. They, better than the educator or even the physician himself, can succeed in bringing home the responsibility to the parents.

Much of the objection to medical inspection has arisen because of the belief that it is too paternal in its scope, that it takes away the responsibility from the parents. In practice, however, the reverse is true. Instead of taking away parental responsibility, it develops it because it increases their knowledge of their children's needs. In many homes the mere taking home of a slip, informing the parents to take the child to their family physician, is not enough. They do not see the necessity for such a procedure. Their child is able to be up and about, and they cannot see any need for taking it to a doctor and incurring extra expense. It is in such cases that the nurse can give the necessary explanation and if, in addition, the family is unable to pay for treatment, can make arrangement for it at some hospital, or out-patient clinic. This form of follow-up treatment is most important. Without it the percentage of corrections is small.

In the securing of corrections, the coöperation of the physicians, the dispensaries and hospitals is necessary and here lies a most difficult problem. It is necessary to avoid increasing dependency and, therefore, medical service should not be placed on a purely charitable basis, except when this, after careful investigation, is found to be necessary. In addition to the work of the nurse in the home, the school has a most important function as a center of social work in the community. Much can be accomplished by small groups in mothers' classes and by lectures to the parents

that will bring them into closer association with the work of the schools.

The chief need for health work in connection with the schools to-day is for central supervision of all work relating to the health of the school child. In each large city, there should be a department of school hygiene under the supervision of a trained physician, who can give his time to the work, acting as adviser to the school authorities and as an executive in carrying out the different lines of work. Among other activities in addition to supervision of medical inspection and supervision of the hygiene of the school-room would be the physical examination of teachers and their instruction in practical hygiene; the outlining of a course of instruction in hygiene for the pupils themselves; the directing of work in psycho-clinical problems relating to the child, including subnormal and supernormal children; supervision of playgrounds and playground schools; supervision of physical training and athletics; and, finally this department should make use of all information gained in school for the improvement of community health. In rural districts this work could well be done by a medical officer, acting through the office of the county superintendent.

In any system the closest coöperation between the health and educational authorities is essential.

XVI.

MEDICAL INSPECTION IN SCHOOLS FROM THE STAND- POINT OF THE EDUCATOR.¹

By THOMAS A. STOREY, M.D., PH.D., Professor of Hygiene, College of the City of New York.

There are four great reasons why every school should organize and perpetuate an effective system of medical inspection. Each one of these reasons alone offers enough serious argument to secure the establishment of medical inspection in all schools. Taken altogether they present a case that ought to convince any intelligent community.

The first reason for medical inspection in schools is concerned with communicable disease. The report of the medical officer of the London County Council for the year ending December 31st, 1909, indicates that scarlet fever alone affected 10 per cent. of the children enrolled under the educational authority of London. Any plan of medical supervision which will reduce or eliminate the spread of communicable disease among school children will enormously increase the educational efficiency of the school system. With an effective system of medical inspection in general operation, there would be a consequent reduction in child mortality; a consequent reduction in the occurrence of incapacitating physical defects the sequelae of communicable disease; and a consequent reduction in pupil absences from school on account of such illness, convalescence and organic weakness. School men are united in the conclusion that absence is one of the most important of the disturbing factors that interfere with the efficiency of the school curriculum. This is true not only because of the effect of the absence upon the work of the individual that has been absent, but also because of its effect upon the classmates whose recitations have been disturbed in content and routine. In this way, through its influence on school absences alone, the immediate results and the after-results of disease have a vital effect upon the quality and quantity of educational work which can

¹ Read at the Conference on Conservation of School Children, Lehigh University, April 4, 1912.

be accomplished in any given school. We must leave out of consideration here our common interest in saving human life and reducing human suffering. No individual or group of individuals can claim priority in such interest. That interest alone is sufficient argument for having general medical inspection everywhere, and cannot be regarded as an argument against placing that inspection in the school. From the facts that I have given above it must be evident that no public servant has more right or reason to advocate an efficient medical inspection of school children than has the school man. He has not only the interest that is common to all humanity. He has an additional interest because of the intimate relationship of medical inspection to the success of his life work.

The second reason for medical inspection in schools is concerned with remediable incapacitating physical defects.

It was reported in 1906 that over 20 per cent. of the children in the schools of New York City had defective vision, and over 50 per cent. had defective teeth.

Statistical inspections of school children made all over the world indicate the common presence of a variety of physical defects. We find defective vision, decayed teeth, diseased gums, obstructed breathing and middle ear troubles everywhere. I might add to the list. These defective conditions are known to have a more or less detrimental influence upon the quality and quantity of school work the child can do. They also have an influence upon the resistance of the child to acute disease, thus decreasing his health resource and making him liable to increasing inefficiency in his school work.

These conditions are amenable to treatment. After successful treatment the child enters into better general health. His functional efficiency is improved. He is better able to accomplish good work in school. His mental efficiency increases with his health efficiency, and his educational possibilities are enlarged with the disappearance of restrictive, incapacitating physical defects. He is likely to be no longer a drag on his class, unable to do good work himself and interfering with the progress of his classmates.

Here again the school man finds results from medical inspection that are in direct relationship with his work and his interests. We are all concerned with increasing the health possibilities of all humanity, and the school man is as much interested as any one else. But in addition he is more vitally concerned than is any other public servant in the correction of incapacitating health-destroying physical defects which limit the power of the school child to study and to learn. The best success of his efforts depends upon the proper treatment of children whose work is retarded by such physical defects, not only because this treatment may enable the child to do better work, but also because the child minus his defects is no longer an obstacle to the academic advance of his classmates.

The third great reason for medical inspection in schools is concerned with irremediable physical defects.

The crippled, the deformed and the delinquent whose incapacitating defects are permanent should be found and classified. The detection of such children and their subsequent classification and their final special instruction opens educational possibilities for those irremediable defectives that are unknown and unattainable without a system of medical inspection. They, more than the remediable defectives, are retarding factors in the school progress of normal children. Their separation and independent instruction, like the treatment of children with remediable defects, works to the distinct advantage not only of the individual concerned, but also to the general class of normal children with whose progress they would otherwise interfere.

From the point of view of the educator, the cripple, the deviate and the delinquent deserve serious consideration. No other member of the community save the child and its parents can have even nearly the legitimate and real interest in these cases that he has.

The fourth reason for medical inspection in schools is concerned with the development of hygienic habits in school children.

With an effective system of medical inspection, the pupils and their parents get into the habit of looking after those influences that affect personal health. The medical inspector that dis-

covers dirty teeth and requires the child to report later with clean teeth is securing an influence on that child's habits which may extend to include that child's children. The public schools of every large city in the world are infested with head lice. After the medical inspector shall have required a few generations of children to be cleaned up, there will be a generally educated public, and more and more children will arrive in school with habits of cleanliness that will not permit them to have pediculosis. Statements of this sort may be legitimately applied to all procedures in medical inspection which result in the removal or correction of defects in health and hygiene.

In addition, medical inspection offers the most direct and effective method of getting acquainted with the hygienic habits of the individual. The examiner may learn seriously important facts concerning the child's habits of eating, sleeping, excretion and bathing, and about his care of the eyes, teeth, skin and all the other various and important hygienic habits which form a basis for human health and efficiency.

Looked at from the view-point of society in general, medical inspection which influences the health habits of the masses is a matter of supreme importance. The school man feels this as keenly as any other member of society, but in addition he realizes that a successful educational influence of this sort means that he will have children of cleaner habits to teach in his classes; that he will have healthier children to instruct; and that his general educational plans will have fewer interruptions and disturbances from absence, abnormality, and physical defect.

I have stated four very important reasons for medical inspection in schools. They are reasons that appeal to society in general. They are reasons that appeal particularly to the taxpayer and lead him to back up medical inspection because it inevitably makes his investment of taxes more remunerative. He has a right to demand that the children on whom the community is spending his money shall be given every opportunity to take a fair average advantage of that expenditure. He ought to rise in his wrath over the inconsistency of allowing a remediable, incapacitating physical defect to remain uncorrected in a school

child. A child with defective vision which is not given glasses—granted that glasses would correct the defect—is wasting public money.

The educator views medical inspection in schools from the point of view of general society, and feels about it as any sane human being would feel. He views medical inspection from the view-point of the taxpayer and feels like a taxpayer. But, finally, he views medical inspection from his own point of view and finds that he, of all members of society; that he, of all public servants, is most affected by the results of a successful plan of medical inspection.

These four reasons justify the educator in advocating the establishment of medical inspection in schools. But it is one thing to establish a system of medical inspection and quite another thing to make that system succeed. In my experience I have learned that there are three requisites to the success of any system of medical inspection. I will not discuss certain other requisites that are essential to the success of any human enterprise. The ultimate value of any system for any purpose depends largely upon the character and the equipment of the men that attempt to apply the system. In this connection I would like to call your attention to a statement made by Professor Hill, of Tulane University, at a meeting of the American School Hygiene Association, last week. Professor Hill stated that only 9 per cent. of the medical profession has gone farther than the high school in their academic education. The importance of this fact in its relation to the success of a system of medical inspection in any given school cannot be overlooked. Good men and capable men and tactful men and men educated for the job whatever the job may be are essential. These things and all that they imply are just as necessary to the success of a system of medical inspection as they are to the success of any other system. I will refer only to such essentials in passing because their relationship is obvious. There are, however, three other requisites which are peculiar in their relationship to medical inspection.

In the first place, it is absolutely essential that a system of

medical inspection should provide physical examinations which will uncover the anatomic, physiologic and hygienic conditions that affect the health of school children. An examination that is anthropologic rather than medical will fail so far as medical inspection is concerned. An examination that is statistical rather than advisory is of little use to the child or the school. The details of any local plan of examination should fit local conditions. And whatever the system of examinations may be, it must be a real system and it must be a practical system. A system that exists only on paper is worthless. A system that does not look for common diseases, common abnormalities and common faults in hygiene cannot be a satisfactory system.

Second, it is absolutely essential to the success of a system of medical inspection that every piece of advice given a child should be followed up if it is the sort of advice that can be followed up. It and its ultimate fate should be recorded with the record of the original examination. For instance, it is a waste of time to record the presence of decayed teeth and advise their treatment if nothing is done to stimulate the child's parent or guardian to secure treatment. It is not worth while to tell a child he has poor vision unless you require the child to bring you a note stating that the fact has been brought to the attention of the parent, and stating that he will or will not have the defect corrected. Every promise of that sort should be followed up. It is irritating to the family, the family physician, and to the clinic to receive a child term after term with the same note from the school doctor concerning a defect of the nose or of the eye or something else which previous treatment has failed to correct, and for which further treatment is not considered advisable or concerning which there is a legitimate difference of medical opinion. If the medical inspector follows up each case he will in his natural routine find out if paternal promises have been made good. If not, he may send a second note to the father or even a third one. If, on the other hand, he has a case in which a special reason has been found for not administering further treatment, he will not irritate the father and the family advisers by repeated notes with reference to the need(?) for treatment.

An effective "follow up" system will enable the medical inspector to enforce the sections of the Sanitary Code as they apply to contagious and communicable diseases. It is a waste of time for the Board of Health to send to the schools printed lists containing the names and addresses of families in which such diseases have appeared on the preceding day unless the school is able to check up the list, identify children who have been exposed, and exclude them from attendance until the Board of Health issues its certificate of re-admission.

A "follow up" system is as essential to the success of medical inspection as its system of medical examinations are. In fact, after medical inspection has accumulated a certain amount of statistical material it is of no further use unless it is backed up by an effective "follow up" system.

Third, no system of medical inspection in schools can be complete and permanently successful which does not eventually educate the parent or the child to a sympathetic and coöperative relationship with the system. If the majority of people in a given community are not in intelligent sympathy with medical inspection in schools, the system cannot last. On the other hand, if the practical health reasons are given for the advice carried home by the child, the parent will see their value and he will be ready to coöperate. There is no difficulty in securing the coöperation of the average parent when dental service is needed, provided the parent realizes the importance of such service. This is true of the whole scope of medical inspection. The child and the parent must be given an intelligent knowledge of the relation between medical inspection, hygienic habits and health.

Medical inspection is, after all, a force working for a better general education in personal hygiene. It is a mistake to teach hygiene in a recitation room and make medical inspections in the examining room without ever pointing out the relationship between the two. In one situation the teacher presents, for instance, the facts regarding the importance of clean teeth. In the other the school doctor finds dirty teeth. In the one place, the child learns what will happen if his teeth are chronically dirty. In the other place, he is advised to clean his teeth, and

asked to report later to show what he has accomplished. Surely these situations are part of the same problem in education. It is certainly a mistake not to bring them together and secure an impressive educational influence upon the children concerned.

From the point of view of the educator, the four great reasons for establishing medical inspection in schools and the three essentials to the success of such a system are all serious reasons why medical inspection should be intimately related to the whole educational system in any given school.

If a system of medical inspection must be a practical system, a system that will work, then it must be a system in sympathetic relationship with the general management of the school. If it is to take a place in the school curriculum it should be under the same responsible control that covers the other members of that curriculum. If it is related to absences—and it must be so related—the relationship should be one of academic sympathy and a part of the school system itself. If medical inspection must follow up cases in order that its work may be effective, the “follow up” must be made through the regular school channels and in the regular way. If medical inspection must have an educational influence upon the hygienic habits of the school child, then its plan of instruction should be pedagogic and under the supervision of the school authorities. If the results of medical inspection are so directly related to the success of the child in his school work and so to the success of the whole work of the school, then surely medical inspection should be a part of the very organization of the school itself.

From the point of view of the educator, medical inspection carried out in school by a department of the school has a far greater probability of success and efficiency than a system applied in the schools by a department outside the school and without responsibility to, or control from, the school.

I have been for six years in charge of a department which has had medical inspection for a part of its work. This system of inspection has been developed by the school authorities, and has reached a high degree of efficiency. Medical inspection, like every other phase of my work, is under control of the school

authorities just as all other departments in this institution are under such control. I could not ask for a more satisfactory relationship.

During the year ending June 1, 1911, these medical inspections brought us into relationship with 3,500 boys. We came in contact with these boys on this basis over 15,000 times. These "contacts" were made up of regular medical examinations consultations and "follow up" conferences. Every case of communicable or infectious disease, every case of physical defect, and every case of obvious faulty health habit was given advice. Every variety of advice that admits of being followed up was followed up.

Our results as shown by our "follow up" system indicate that for the year ending June 1, 1911, the parents of 980 of our boys followed our advice and consulted with 580 physicians; the parents of 1,150 of our boys followed our advice and consulted with 536 dentists; the parents of 83 boys secured the service of 41 opticians; the parents of 108 boys sent their sons to 37 free clinics; and the parents of 78 boys sent their sons to free dental clinics.

We find here a basis for great satisfaction, when we realize that these figures mean that during that year the parents of over two thousand boys were sufficiently interested in the improvement of the health of their sons as to pay for the legitimate services of over 1,100 expert advisers; and that for those services these parents paid on a conservative estimate over \$12,000. We know that in a later period, in three months, the parents of five hundred boys spent over \$3,500, upon such service.

Statistics for a term of four months ending February 1, 1912, indicate that advice was given to about one thousand boys during that term. Half this number received advice concerning health habits which advice they could utilize without consulting a regular family adviser. The other half were advised concerning physical conditions that needed expert treatment. We find that 94 per cent. of those boys were sent by their parents to their private advisers, and that only 6 per cent. went to free clinics.

During the last five years this department has had recorded this relationship with about seven thousand boys, most of whom

on the first examination were members of our preparatory department and of the high school age. By the end of this year we will have come into contact with these boys, while they have been in regular attendance, over 50,000 times. I have no figures covering this whole period, but if the results uncovered by our "follow up" system for the last year and a half are comparable, I judge that the medical inspection as carried out in this school has affected five or six thousand boys and through them has had an influence upon the health habits of five or six thousand families. I take it this influence is real because we definitely plan to instruct each boy concerning the reasons for the procedures which we follow and to which he must submit. We certainly secure the co-operation of most of our boys, and the expenditures made by parents as reported by their sons would indicate that those parents were in sympathy with our plan of instruction. Only $\frac{2}{3}$ of one per cent. of our boys are dismissed from school for failure to report in the "follow up" conference and only $\frac{7}{10}$ of one per cent. of the parents of these boys refuse to seek expert advice after we have recommended that they do so.

In conclusion, I must say that the four great reasons which I have maintained justify medical inspection in schools are the reasons which have led an educational institution, the College of the City of New York, to make medical inspection a part of its plan for the individual instruction of its preparatory and collegiate students in matters of personal hygiene; and that the three essentials which I have claimed are requisite for the success of a system of medical inspection are essentials which have been incorporated in the system organized by this institution; and, finally, that the net results of this system of medical inspection which has been organized, administered, and supported by this educational institution amply justify its plan of organization, its operation and the nature of its control.

XVII.

"THE PREVENTION OF INFECTION OF THE RESPIRATORY TRACT IN THE SCHOOLS."¹

By WILLIAM CHARLES WHITE, M.D., Prof. of Medicine, University of Pittsburgh, Medical Director, Tuberculosis League, Pittsburgh.

The time has come when to many there appears the necessity for determining how long the earth's inhabitants, at their present rate of increase, can subsist on the visible supply of the necessities for maintenance. The visible supply of necessities refers mainly to:

First, those materials which provide warmth for the dwellings, such as coal, wood, and water power, etc.

Second, those materials which provide the means of manufacture of necessities and transportation, such as coal and iron.

To some, it appears that the application of the Malthusian principle of population is imminent. In other words, that the population is increasing so rapidly in proportion to the increase of food supply that there is grave danger ahead of us.

That the importance of these issues are apparent to various governments is evident in their plans and commissions for conservation. Studies of the high cost of living have induced the President, through his consular agencies, to urge an international inquiry because he finds that the increase in the cost of living is universal and there are multiplied evidences of the universal restlessness under these conditions. As a matter of fact, Malthus predicted what has come so near us and the high cost of living is really too many people to feed with the available food and we have no one on earth to perform the miracle of the loaves and fishes.

I do not wish to be misunderstood. There are vast territories yet to be peopled such as Canada, Africa, New Zealand, and South America and the possibilities of food from land and sea are far greater than many times the requirement for the present

¹ Read at the Conference on the Conservation of School Children, Lehigh University, April 4, 1912.

earth's population, but to-day the *available* food is less than the necessities for the population.

That the inhabitants of many countries, consciously or unconsciously, realize this and individually attempt to avoid the demand of support which progeny enforces on them, is evidenced by the falling birth-rate of the most civilized parts of the universe. The sexes still marry but they stop producing as many children. France has for years been disturbed by its falling birth-rate. In Prussia and Germany, the constant decrease in the birth-rate has called for strenuous measures. A commission in these countries to study the problem found that the decrease affects the legitimate fertility. The number of marriages has remained the same. There is no diminution in the reproductive capacity of either sex. The conclusions are, I am sure, applicable to all countries. Let your minds dwell on the small families of your married friends and the answer is plain.

England faces it, and Bernard Shaw places the blame on the 500,000 spinsters, but the German commission is nearer the truth. United States, to its shame, has no record of its birth-rate as a whole, and only for the past few years for any part of it, but if a study be made of the tables on p. 18, Bulletin 109, U. S. Department of Commerce and Labor, the striking reduction of the birth-rate in some of the eastern towns and states is appalling. Rhode Island had in 1910 less than one-half the births of 1908.

Opposed in a measure to the great army of child producers who are, in one way or another, curtailing the supply, is a growing army of conservationists to which we belong. The great aim of this group of workers is to conserve and retain for future usefulness those children who escape the vigilance of their forebears and get born. To us every child is a treasure of growing value the more we spend upon it in feeding and educating it.

The large majority of children are anticipated with a supply of clothing and utensils and from the day of birth are an increasing expense. This outlay of money and time in raising children is much increased during sickness and totally lost by the death of the child.

That the group of conservationists, to which belong physicians

and charities as well as health organizations of public and private character, has had a tremendous influence is evidenced by the falling death-rate which for the cities of the world varies from 17 per cent. to 49.5 per cent. decrease for every 1000 persons living, and this has taken place in spite of an increased death-rate over 40 years of age. The vast saving has come in the earlier years of life.

While a great loss undoubtedly results from death and we are likely to be led astray by the figures relating to death, it is only because figures relating to loss through sickness are not yet available that we have neglected this side of the question. Many of those whom we have spent money on, die. This number, however, as pointed out, is being satisfactorily reduced. A far more serious loss and expense is due to avoidable illness.

Among the causes of sickness which produce a very heavy annual expenditure of a more or less unnecessary nature is the great group of respiratory tract infections—enlarged tonsils, adenoids, coughs and colds, bronchitis, tracheitis, etc., with their complications. These infections are due largely to the coccus group of organisms with liberal assistance from the diphtheria bacillus, the tubercle bacillus, and the influenza bacillus. It is impossible to compute the annual loss and suffering from this group of diseases or to even prospect upon the foundation laid by them for future more serious maladies. We cannot so much as state with positiveness that the constant tampering with the immunity of different ages which such infections seem to inflict on the general resistance is a fact and yet we cannot watch the gradual invasion of infective rheumatism, infective cardiac lesions and St. Vitus Dance in the subjects of frequent tonsillar and adenoid infections without the suspicion of some close relation between the respiratory tract invasions and future fatal infections. Be this as it may, the common colds, coughs, enlarged tonsils, adenoids, pneumonias, etc., cause more sickness than any other one thing or group of things, and are consequently the source of greatest waste. After watching a large number of poor children in the dispensary and over 500 orphans in the Presbyterian Orphanage for some years, in and out of homes, in and out of

schools closed and open, I am convinced that the three fundamental causes in producing sickness from these infections in children, in addition to the specific infective agents spread by coughing, sneezing, and spitting, are *poor food, poor air, and too little rest*, which materially lower the resistance.

The infecting agents will be for a long time constantly present, but in spite of their presence, if the immunity be raised by increased food, better air and more rest the infection will soon disappear or not occur in spite of the presence of the infecting agent. This has been proven so often that there can be no argument on the other side save that offered by isolated cases. No one who has watched the development of open air schools and their results can for a moment question the value of more food, fresh air and more rest. I have now two such schools under my care—one, the second in the United States for open-air treatment of tuberculous children, and one, the first of its kind for children culled from the inmates of a large orphanage—the most progressive of its kind. And it is miraculous how quickly the almost universal coughs, running noses, and sputum of the children clear up with more food, fresh air and rest, how rapidly the tonsils reduce in size and how free they remain from future infections until they again return to former conditions.

That we have so long as a nation failed to see the teaching of these facts is the more curious since the children are absolutely under the control of the state from 9 A.M. to 4 P.M. with a short mid-day intermission. When the possibilities of a better condition of affairs is apparently in the hands of authority, it behooves us to ask why the changes have not come more rapidly. In the first place, we must remember that most of the improvements in health work are tried out on a small scale by the voluntary organizations. If these experiments are successful, the popular demand becomes so strong that authority begins to enforce the law. One able political leader expressed to me in conversation that he was unable to give the public more than the public would take. This is the general political view. We have had evidence in this state but more especially in certain of the larger municipalities that this is not so.

In general, I think much of the trouble comes from the lack of sympathy between the official health administration, and voluntary health work, and to a lack of the spirit which desires only the highest achievement of public good which can alone come from a proper correlation of all working factors and a distribution of labor among these from some legally constituted head.

Among the reasons for our slow progress in securing desired results in this field, I would place:

1st. Our political appointed, generally inefficient health officers.
2nd. The political status of our school boards.

3rd. The lack of coöperation in efforts by administrators of health laws, physicians, and educators.

I have long dreamed of the day when health officers would appear in the land of a broad enough type to initiate a correlation of all agencies in any municipality. The routine of the health office runs in such a way as to allow the head time for constructive work. His voice before boards of education, charities, hospitals, etc., pointing the way for coöperation, leading the dissociated groups to a common purpose, demanding uniformity on all operations touching public health questions which are clearly defined by law, would meet with immediate response. If voluntary agencies can do it, how vastly more could be done by an agent backed by law.

Some day such men will appear, then we will have reached that point in conservation which we desire and in municipal autonomy of local agencies centralized in a legal chief, with a proper correlation of the work of the different factors, public and voluntary, we will attain the highest point of efficiency in the struggle for a healthy race.

BEDFORD AND WANDLESS STS.,
PITTSBURGH, PA.

DISCUSSION.

Dr. Watson L. Savage, Pittsburgh:

It hardly seems that I would have much to add, or that I could add to what has been said, but I have brought here to-day a concrete example of what is possible under different environment, and what I say, I trust you will take, not to mean a criticism on the efforts that have been made in Pittsburgh,

where you may know one of the greatest works has been done in health and where they reduced the problem from one of the worst living places in the world to the third city in the country in low-death rate.

I have listened with great interest to the papers of the previous speakers upon the question of school medical inspection, and feel that the subject is presented here to-day at a most opportune time.

We in Pennsylvania are just reorganizing our schools under what is known as the New Code, which will afford, we hope, many opportunities for instituting new and important features in the school problem. It was with this fact in view that I believe the committee arranged for this program, and I hope what we have heard to-day from those who have had large and wide experience in this problem will not only be taken seriously by our educators, but that definite and positive action will be taken to bring about a very much improved condition of child health in the State of Pennsylvania.

Statistics tell us that more than one-half of all sickness is due to ignorance, and therefore it would seem the greatest progress to be made in this campaign against disease must be done through education, and the movements which will make for safer and more healthful conditions in our schools must come through the education of the masses. It is not only necessary to educate our children, but also the parents of the children must be brought to realize the importance of those things which will prevent disease.

It has long been my belief and practice that the medical inspection and examination of the pupil is far more valuable than the statistical or anthropometrical, but it has also been a known fact that the medical examination oftentimes can only be obtained through the statistical, as many parents might object to a medical examination where few would object to a child having his measurements taken. Therefore, the taking of measurements has been a means to an end, and that end is the making of proper observations and examinations of the individual students. When these observations have been made, it is of special importance that the pupil and also the parents be made aware of the condition, and proper steps be taken to correct it, in other words, by the "follow-up" system the processes of education are driven home. It is not enough that we note defects but it should be possible to enforce correction and if need be make laws to this end.

In connection with these observations, it is interesting to note the work that is being done at the Carnegie Technical Schools. Two years ago there was begun in these schools a series of studies and observations upon the entering students, all of whom were carefully examined by the physician in attendance, as to their physical well-being, strength and efficiency, the object being to detect all the physical defects and single out all students who seemed to be very slow in physical efficiency, requiring them to have corrected any physical defect which would seem to the examiners to prevent their maintaining the best physical power.

After getting together the first series of tests and examinations, it was

found that such a large percentage of the men fell below what was estimated to be a very low passing standard, that on making my report to the director I advised him not to make public the findings, as they seemed so poor that I could scarcely believe the results and there might be some errors in the observations, or the methods used in determining the values. A second series of examinations have just been completed of the entering men, and although we have carefully checked up all our instruments and gone over the previous work, we find that this series of examinations bear out those of last year, and I therefore feel safe in making my report to the director of the result of the examinations of students in the Carnegie day courses.

In the first place, as last year, the physical index and vital index of our entering students is exceedingly low, and the health index likewise. Is this due to climate, housing, nutrition or what? I cannot fail to attribute this condition in a large measure to the inefficient methods of student inspection and physical training in the Pittsburgh district, as our students are largely drawn from this district. This means a lack of systematic examinations or "follow up" and thorough physical training in all our preparatory schools, beginning with the grammar schools and continuing throughout the high school courses.

I have never seen so low a physical condition in any body of students as we have at the present time in the technical schools, and the examination of the second series of men coincides very closely with the series of last year, so that the condition of the entering men this year seems to be practically the same as last, but other factors are apparent, upon second examination of last year's students, the most striking of which is that of the men who were conditioned in the department of student health because of failure to maintain their health indices, and correct errors pointed out, 83 per cent. of the science men have fallen out of college, 85 per cent. of the design men have likewise failed to continue in school, and 70 per cent. of the school of applied industries. This fact brings strongly before our minds the close relation between physical efficiency and success.

In the light of these observations I believe that we have conclusively proven that the physical condition of our men in this district is not ready for an optional course in student health, and I believe that we are compelled to make provision, at least in the plebe year, for a prescribed course in physical training to the whole student body, with power to enforce in the hope that we may, by so doing, considerably lessen the large percentage of failures as shown by this report, and by other reports that have been the source of considerable anxiety in our schools, *i. e.*, the great number of men failing to complete their courses. It would seem that the health is a larger factor than had been charged to this account.

This report indicates also that medical inspection of school children under the board of health is not performing its full duty, and it is my belief that that can be done only by the education of the pupil, the education of the parents,

and the education of the public, and the proper department for this work to be carried on under is the physical training where the teacher gives the whole time to the work. Men and women in this department must be trained not only in gymnastics, but also and more important in hygiene, diagnosis, student and school inspection, sanitation, and preventive medicine. This department meets all the students in every grade and gets closer to the individual than any other, following them from year to year in their working as well as play hours, hence it is able to exert the greatest influence and is the logical and economical place to prevent disease, educate the pupil to protect the family and child of the future. The department however must be headed by a physician of highest standing sufficiently well compensated to enable him to devote his best energies to his work.

Mrs. John L. Stewart, South Bethlehem:

My excuse for taking up a few moments is that I should like to say a word for parents. They have been criticized and unfortunately, a large number deserve it; if they did not, I am sure we should have this room crowded by those who ought to be interested in all these matters so seriously advocated—the relation of their children to the whole of life. I feel that perhaps I represent a smaller group of parents who feel that there is a great deal to which they do give their consideration from the standpoint of the child and in fitting him for living. We have heard that there are a great many things that are wrong and we know that there are in this civilization. The best perhaps that we can say is that they have come about from the fact that we are living in an industrial age to which we have not become accustomed; we have not fitted ourselves for these new conditions. We realize that the home is not capable, the discussion proving it to have broken down in a number of instances, and the school also seems unable to meet the problems. The children leave the school physically and mentally unequipped to do what is necessary, and society does not seem to have considered that anything is wrong.

We have had a great many excellent suggestions made during this Conference, both from the standpoint of the physicians and from the standpoint of the teacher. We feel that all these suggestions are good and that they are going to make the whole life of the child better; but would it not be wise to ask ourselves at this point whether there isn't some very radical thing that we should consider at this time? The children of most homes have only the school for their guide; that is, the school seems to be the only thing that comes between them and what is wrong in many instances. We think especially of all the foreign population we have here and ought we not to ask ourselves very seriously whether the school really could meet the needs, even if it should adopt all these suggestions? I feel that we ought to go to the bottom of the situation and look at the matter in a different way; if we did we would see that we have been regarding the school from the standpoint

of the book and we should rather regard it from the standpoint of the playground. The natural life of the child is play. Physically we know that we cannot produce the best individual if we shut him up in a building four, five or six hours a day and we cannot have the best even if the ventilation is perfect. We ought to go seriously into the question from the whole standpoint of conditions permitting of fresh air and the natural environment of the child which is supervised play and so arranged that the whole life—physically, mentally and morally—is viewed and perfected from that starting point. Fortunately we do not have to think that out unaided; some one has organized a school system in Gary, Indiana, with play as the keynote. I cannot help feeling, without any criticism whatever, that a great deal of our school money is wasted, and this means a terrible waste of youth, due largely to the fact that the schools are losing their opportunities. We ought to go away from here with the determination to study this new system which emphasizes the play element, with the view of introducing it in all of the towns of this great state, as one way of meeting these conditions.

Mr. N. M. Emery, Lehigh University:

The visiting members of the Academy may be interested to know that at Lehigh University we are paying proper attention to physical education. Three hours a week are required of every student during the entire four years of the course. This work is necessary for obtaining a diploma and also counts scholastically at the end of each term in determining whether the student meets the minimum requirement for remaining in college. An interesting feature is that the matter was considered by a joint committee of the faculty and of the student body and that the system was recently put into operation at the unanimous request of the students. Those connected with the university are not only expecting to see increased physical efficiency but they believe the system will have a beneficial effect on the scholastic standing of the students.

Miss Sara Phillips Thomas, Philadelphia:

The cause of the high cost of living is largely an agricultural one. The solution of the question is that the farmer must apply more scientific knowledge along agricultural lines, practise more intensive farming in order to increase production, and schools must teach agriculture; also in this conference on the conservation of children, I think there ought to be a place where the attention should be directed to the effect upon women and children caused by the entire disregard of climatic conditions shown in the dress of our 20th century women, *viz.*, that of low shoes and summer garments worn during our winter months.

Supt. E. E. Kuntz, Lansford, Pa:

I believe we make a mistake in allowing children to go to school as young as we do, that is, the minimum age of six years. I think a good work for the

legislature to do would be to raise the age at least a year or make a provision that for the first year children have half-day sessions only and that they shall be under the care of the parent or the home for the other half day. They should be outside and in the fresh air. It would be advisable if we could have those provisions made by which we could give them the games and physical exercise necessary for strong childhood. We know how restless children of five or six years of age are. To be at work in the school-room for five or six hours a day is cruelty to childhood. A few years ago in my district an opportunity was given me in the primary grades to put into execution the half-day sessions. I had half of the school in the forenoon and the other half in the afternoon. I am safe in saying that we had a better standing in our primary grades at the end of that year than before or since. But here is our trouble—since we have more room—those parents who do not want to be bothered with their children at home, ask if we are going to have half-day sessions, wanting, of course, the whole day sessions. The desire of some parents to be rid of their children at home by sending or wanting to send them early into the primary grade is a great mistake. If we could give the children more of physical culture and less mental cramming, I think we would accomplish more good for public school children.

Dr. H. B. Burns, Pittsburgh:

As the official in charge of the work of School Medical Inspection in Pittsburgh, I want to correct an impression that may have been received from Dr. Savage's paper. His statement that the low physical standard of the two classes in question was because or indicative of the inefficiency of Medical Inspection in Pittsburgh is misleading and unsustainable.

The medical examination of the school children in Pittsburgh did not begin until June, 1911. No student, therefore, in the two classes referred to by Dr. Savage, or any other class at Carnegie, had ever been the recipient of any such examination, having been admitted to the Institute of Technology before the work of School Medical Examination was inaugurated in Pittsburgh.

It is regrettable that Dr. Savage did not take the time to inquire as to this before making a statement which practically charges the Pittsburgh School Medical Inspection with responsibility for a condition which existed previous to its birth.

Dr. L. L. Button, Rochester:

I believe that it would act for the advancement of hygiene, both general hygiene and sex hygiene, if there should be two large toilets in each school building, one for boys and one for girls. These rooms should be in charge of a carefully-selected man and woman. The rooms should be equipped with liquid soap and paper towels, and such other usual conveniences that school toilets generally fail to offer. This supervision and provision would, I be-

lieve, not only teach habits of personal cleanliness, but also prevent the acquisition of much bad sex misinformation.

In the matter of eugenics, it seems to me that hygiene, properly taught in the present school generation, will have a most salutary effect later on when these children become adults; for, as I see it, the greatest good in eugenic advancement comes from within thorough hygienic instruction, and not from without by means of external pressure, such as is exerted by legislation. Such measures do good, but it is only when they are voluntarily accepted and lived up to that the best kind of good results. The attempt to force eugenics upon the unreceptive fails to develop the very qualities most essential for good, namely, the will and the intelligence to do the right thing. These I believe can only come by education, and not by legislation.

Mrs. Clara P. H. Stilwell, Philadelphia:

We have heard so much about what the teacher *should* be, that I cannot but say a word for what the teacher *is*. In our schools we find very many men and women who are self-sacrificing, who are greatly in earnest, and the largest factor coming into the life of the child. I think the only reason why the majority of these teachers do not measure up to the standard which you are asking of them is, because they have not had the opportunity for the preparation which they most gladly and willingly would have embraced had it been within their reach.

It has been my privilege within the last two years to go into 150 public schools in the city of Philadelphia, and thus I have some knowledge of what the teaching force is in that city at least. Going into that part of Philadelphia where there is almost altogether a foreign population, I have many times had little children greeting me with "How do Teacher," "Hello, Teacher," and on several occasions they have rushed up to me in tears, with an appeal for help in some childish difficulty. Why? Because seeing a woman in appearance and manner different from those about them, they thought she must be a "Teacher"—one sure to be both kind and wise.

Dr. Seneca Egbert, Philadelphia:

I feel that not enough attention has been given to the matter of playgrounds to-day. This is a feature of our public school question. It seems to me that it is bound to become associated with our medical inspection, and that the school medical inspector will some day prescribe for those children who need it so many hours in the playground per day, just as he now advises glasses, dental care, etc. Half- instead of whole-day sessions for primary children have been spoken of. I believe myself that we start our youngsters too early into school life and that the sessions are too long for some of the younger pupils. If we had abundant playgrounds so that the small children could spend part or half of the school hours in them it would be an admirable arrangement. I think an important thing hereafter will be to see

that schools are provided with playground facilities, either close at hand or readily available.

Dr. Florence H. Richards, Philadelphia:

I should like to ask Dr. Storey how long a time he gives the pupil to have his teeth attended to, and whether, if this is not done promptly, there is any way by which he can force the parent to cooperate with him?

Dr. Storey:

We plan to give each case sufficient time to secure the services of the regular family medical or hygienic adviser, but we also plan to waste no time in useless waiting. Whenever it is possible to secure the desired treatment in such a short time, the individual is required to report on the day following his examination. If the service of a dentist or a physician is involved, we always plan to allow a Saturday or a holiday to intervene in order that the boy may have sufficient time to make a regular visit.

In those cases where treatment is promised, we wait a reasonable time—a month, or until after the summer vacation—and then inquire as to the fulfillment of the promise.

Dr. Elizabeth L. Martin, Carnegie Institute of Technology:

This is the fourth year that there has been regular medical inspection in the Margaret Morrison Carnegie School for Women; and as the first class under observation for three years graduated last spring, it was interesting to note the improvement.

I make every fall a physical examination of the entering class besides the regular measurements which are taken by the instructor in physical training. A record is kept of the condition of each student at the beginning and end of each school year. All defects are noted, and, of course, appropriate advice given for the improvement of such cooperating as far as possible with the family physician.

Agreeing with Dr. Savage's observation of the men, I found a very low standard of nutrition among the women. On admission to the school, the 1911 class, 62 in number, had only 37 per cent. of their number who could be rated as normal in respect to their nutritive and nervous condition. This class graduated with 49 members, 61 per cent. of whom were rated as being in good condition, 32 per cent. as fair and only 6 per cent. as poor. 35 of the 49 women showed definite improvement which was especially marked in 17 who were distinctly poor on admission to the school.

It is very gratifying to see the improvement in girls who had failed in other schools on account of ill health and who graduated last year and are now doing excellent work. I do not feel that the credit for this depends entirely on the medical work nor upon the work in the gymnasium, for the object

of this school is to train women for "living" and the coöperation with other departments is of the utmost importance.

When girls are studying sanitation, cooking and the chemistry of foods in connection with the principles of physiology, it is comparatively easy to gain their coöperation in right living. I believe one's influence is tremendously increased when you can tell them "why" certain rules should be obeyed. And this is simplified by beginning the teaching with a study of the conditions necessary for all living things. I have always felt that my work as school physician would be greatly hampered had I nothing to do with the teaching of the first principles of hygiene.

Dr. Helen C. Putnam, Providence:

As the discussion seems to be gathering up various omissions in the conservation of school children, we should go on record as including one fundamental alteration in our schools that has been advocated by several writers during the last 20 years and recently by no less a personage than the Specialist in School Hygiene and Sanitation of the United States Bureau of Education, Dr. Dresslar. It is that school houses should be built where they can have several acres of land around them. This means for cities building them in the suburb, with perhaps or probably free municipal transportation—that we hope for us all some day. This is very like what some rural communities are doing for their "consolidated schools," and is what many private schools do for even children of kindergarten and primary ages. These have already demonstrated the practicability of transporting pupils between school and home.

The need for schools to be in an environment of health, nature and beauty is imperative. For health alone there are reasons enough. Fresh country air coming in windows, doors and ventilating openings will do much to solve the problems of cleanliness and to improve our vital statistics. The peace of bird songs and rustling leaves and country roads will help. The surrounding acres would furnish playgrounds and school gardens, while constantly educating in primeval phenomena and giving glimpses of the infinite from which the environment of city wards cuts off all knowledge. To develop human souls between brick walls and stone pavings, among crowds and police means a more serious loss to character than the men who make such cities appreciate. It is not necessary. Already Boston has given more or less extended study to the matter, which is the first step toward its realization.

If this Conference were to formulate but one resolution, I am confident that the wisest—because it would go furthest toward solving many problems in conservation of children—would be one urging study of the feasibility of locating every school building in a small park for children's use, with free transportation if necessary. I am not sure that it would cost more than our present meagre yards in the midst of cities. In the long run—the building of a nation—it will do much to save us from bankruptcy.

Dr. W. S. Cornell, Philadelphia:

It has been said that one of the great faults of our medical inspection is the making of statistics. However, there are a few things that we have done in Philadelphia worth mentioning. In the first place, about glasses. We have a city oculist who treats two or three thousand children each year. Then we have an arrangement with three or four reputable opticians who will supply glasses for one dollar a pair to any child whose parents are unable to pay more—the child who gets his glasses for nothing is very apt to break them. We have a dental clinic at City Hall morning and afternoon and another dental clinic at one of the public schools. My recollection is that from six to nine hundred have been treated at City Hall since the beginning of the year.

The greatest difficulty attending the open air schools is the item of expense, this being \$100 compared with \$30 for the ordinary child. I shall certainly bear in mind the suggestion of Dr. Egbert concerning playgrounds. I cannot see the practicability of having the public schools in the suburbs. We would do well to follow the plan of the Catholic Church in Philadelphia and build our schools as they do their churches in a beautiful place beside a public square. If we had one or two schools in Philadelphia along the park it would be a great benefit to the children. I think too often parents feel that the children cannot walk more than about four blocks to school.

Dr. H. M. Bracken, St. Paul:

We have had this subject presented from the standpoint of public health and from the standpoint of the educator. A short time ago an educational body committed itself to the policy of recommending that this work should be carried on from the educator's point of view. It seems to me unfortunate that any body should commit itself to a definite policy for I think the conditions depend largely upon the locality. In certain places it would certainly be better at the present time to carry on the so-called medical inspection of schools under the Board of Education. In certain other places it would be impossible to get inspection under the Board of Education. It is necessary in the country districts that public health and school inspection should be carried out together and under such conditions, medical school inspection should be under the health department rather than the board of education.

I think it is too early for us to commit ourselves to any one policy. Dr. Storey put up a strong argument for the educational side, but I think you will all agree with me that Dr. Storey's work is Dr. Storey's work, not the educational department's work.

It may not be wise to move all of our city schools to the country, but it seems to me a mistake to locate our open air schools in cities. There is only one place for an open air school and that is in the country. In England you will find that the children go long distances. In some instances at least they are carried to the end of the tram line, and then still farther in some other

form of conveyance. Often the second conveyance fails to meet them and they then have to walk. You speak of expense in England, the tram lines do what the street car lines ought to do in this country; they carry the children free.

Supt. Halliday R. Jackson, Mauch Chunk, Pa. :

I should like to present some of the problems of the smaller districts. Our school board voted for medical inspection, and we have had twenty minutes of medical inspection for 500 children. You will say we should have written to the health department. We did, but the machinery moves very slowly. The teachers carry on a cursory examination and when we have found defects in hearing or vision our trouble has only commenced because in the country we do not have the hospitals to which we can send the children. One difficulty is that the glasses are secured from wandering oculists who give what they have and not what is best. Another of our difficulties is the problem of ventilation.

You will find installed in many of our smaller towns systems of ventilation with elaborate rules, requiring for example that the windows shall always be kept closed. In some places the sashes are screwed down. The new State Board of Education will probably take care of new buildings but many pupils and teachers will suffer through the older buildings.

It would be a splendid thing for the smaller communities if this body could spread among the doctors a feeling of responsibility for child life that would remove many of the compromising statements such as "I think you can get along under the present conditions" or "it is not absolutely necessary that this system or practice be changed."

The doctor occupies a vantage ground in the small community and if he insists that defects be attended to, much more is likely to be done than if he merely suggests that "it would be better or ideal to make the change."

Dr. Storey closes :

I believe that the things we have done may be accomplished by any group of men equipped for such work, provided those men possess tact, patience and perseverance. I believe, too, that the systems I have put into operation will work anywhere with certain necessary local modifications. The larger problem is a complex one. The rural district is one problem, the small town another, and the big city another. The general plan for all localities may be the same, but the details of local application must necessarily vary.

I should not like to leave the impression that I do not believe in the absolute final authority of the Board of Health in matters related to communicable disease. Whatever medical inspection may do in the schools, the Board of Health is finally responsible in all cases of infectious and communicable disease. The school department covering medical inspection should refer all such cases directly to the Board of Health.

I should like to point out certain disturbing influences which will operate against the satisfactory development and the best success of a system of medical inspection anywhere: (1) Educational conceit in the school man; (2) educational ignorance of the medical man; (3) lack of tact on the part of both. For the two to get along there must be some feeling of mutual responsibility and mutual respect. Each must realize the need for and the value of the help of the other, regardless of who is in final authority.

Again, the question of the influence of politics is a serious one. So long as politics may have a determining relationship to medical inspection, so long are the chances of establishing a successful and enduring system relatively small.

What we can and must do is to lay down the general principles along which medical inspection shall be developed and then hope that in each individual community there will be secured the best available educational, medical and public-spirited help, so that the local system may be developed to fit the conditions as they there exist.

XVIII.

THE RELATIVE PHYSICAL ADVANTAGES OF SCHOOL LUNCHESES IN ELEMENTARY AND SECONDARY SCHOOLS.¹

By IRA S. WILE, M.S., M.D., New York.

The general trend of present human progress is distinctly along the line of the conservation of field and forest, mine and stream, and at last attention is being adequately focused upon the conservation of childhood. With compulsory educational laws existent throughout the States, the responsibility of the States for the safety and protection of childhood has been increased. To compel a child to go to school by law is to assume the responsibility for the care of the child during the period for which the child is within the custody of the educational authorities. Dr. Harrington has stated that "Education must consider the student as the subject of its teaching." To spend all the stress of thought upon curriculum, school buildings, school gardens, music and art, is neglecting the most important phase of the educational problem, namely, the child who is to receive the education. In the broad conception of educational institutions, the curricula and the teachers are far less important than the problems of securing fresh air and good food for the boys and girls during the school age.

Medical inspection as related to the public school system makes note of many symptoms which are apparent among the children, but all too frequently fails to get down to the causative factors responsible for them. Preventive medicine demands a knowledge of causes in order to assure efficient prophylaxis. The intellectual development of children and their physical development are inter-dependent and do not represent isolated phases of child nature. A sound body and a sound mind are closely interrelated and are not mutually exclusive. It is in the interest of the educational system to develop the students in those phases of life to which the home gives inadequate attention. If as a result the

¹ Read at the Conference on Conservation of School Children, Lehigh University, April 4, 1912.

school often seems to overlap the functions of the home, it is in the best interests of both the home and the school.

No one would deny that in any system of education the point of view should be such as to secure the greatest good to the greatest number of children. Taking New York City, for example in the year 1910, there were in the elementary schools 693,246 children while there were in the secondary schools only 50,902, of which number 31 per cent. failed to finish their course. It is striking to note that in the elementary schools only 31,341 children graduated, while in the sixth grade there were 68,514. In the special classes among the elementary school children there were 1484 defective, 432 cripples, 215 tuberculous, and 62 anemic children. It is all well and good to provide adequate attention for those abnormal children and to supply them with food and fresh air, as well as the mental pabulum, but it seems a much more rational procedure to give the same opportunity for the preservation of health to the normal school children instead of placing a premium upon ill-health.

In the entire school system of New York City, only 3.42 per cent. were over 16 years of age, but there were 175,000 children over 12 years of age in the fourth grade and above, 41,000 of them being in the eighth grade. The relation between mentality and good health has been well established. Porter, from St. Louis, has shown that well developed children take a higher rank than less developed children of the same age. The purpose of education is to fit children for life; and the knowledge that they may acquire and the use that they may make of it are equally dependent upon the health of the child during the course of education.

Puberty is a period of general acceleration of growth. There is an increase of height, of weight, of strength; there is a modification of the nervous system with the development of the emotional side of the child's nature, and a susceptibility to impressions such as occurs at no other period of life. In addition to this, puberty forms the period of the development of the sexual characteristics which bring to bear upon educational problem all the variations that may come from the dominance of sexual emotions

and the manifestations of sexual development. Physical education must embrace more than a question of muscles; it involves brains, sex life, and general stability. It is not a question as to whether a muscle is hard or soft, or short or long, or thin or broad, but it is a question as to the general physical efficiency of the child, and this involves its mental as well as the ordinarily termed physical attributes. The opportunity to affect the pubertal development of the children is given only during the pre-pubertal period, and this represents the period of greatest activity of the schools, for the average age at graduation from the elementary schools of New York City is fifteen years.

Superintendent Maxwell in his Twelfth Report states: "Provision should be made in all schools for supplying food at cost price to the pupils in the middle of the day." This, in a way, is an acknowledgment from the head of the school system that there are many children for whom food is not available at home during the very period for which provision is made in the work of the day for them to go home for food. Educators well appreciate the necessity of full stomachs as a prerequisite to securing full minds. Nourishment supplemental to that of the home is now being supplied to cripples, anemics and subnormal children for curative purposes. It is far more wise to extend the institution of making a food supply available to the elementary schools for the purpose of preventing the physical, mental and often moral break-down of the children during the period of elementary school life. Adequate and well selected nourishment is essential to the well-being of children. The effect of food, as well as fresh air, may be readily understood from the experience of the anemic class of Public School 21, New York City, where during 10 weeks the average gain in weight was $3\frac{1}{2}$ lbs. In Boston, 18 pupils gained on the average $4\frac{1}{2}$ lbs. in three months with supplemental nourishment in a fresh air class while their total absences for a period of three months were reduced from 583 to 39.

In every community there are many poorly fed children whose malnutrition is evidenced in part as anemia, or in enlarged glands or in susceptibility to contagious diseases. For children of this

character supplementing the home feeding is exceedingly desirable. There is no intent to suggest that free lunches shall be provided for public school children, as this would merely serve to relieve the family from the responsibility of feeding the children. Available lunches, however, are a boon to the family and a necessity in order to supply adequate food for the many children who cannot secure it at home. The responsibility of the family is not lessened, inasmuch as the available lunch is not given gratuitously, but is sold for a small sum, and the responsibility of the parents is heightened by impressing upon them the necessity of having their children take advantage of the lunch available at the school.

Physical training at the present time takes cognizance of the general development of the children and even goes so far as to give marks for posture, chinning and exercises of various kinds. Motor training, however, is not merely muscular, but has nerve stimuli for whose prompt action good nutrition is essential. It is well known that in the course of training of athletes neuro-muscular planes are developed through superalimentation. Endurance is not independent of food, and the physical training of children of the elementary schools requires for the successful development of the children an abundant, varied and sufficient food supply.

Much attention has lately been given to the question of proper dentition. It is a striking thought that the permanent teeth of children practically are developed during the period of elementary school life. It might well be said proper food means proper teeth. As has been suggested "If children could be sent to a chewing school as they are now sent to a kindergarten there would be a marked improvement in the race."

Dentition may be delayed or impaired by inadequate nourishment. The lack of lime salts in the daily dietary in the home is a large factor in early decay. The value of tooth brush classes for children whose permanent teeth have not yet erupted arises from the congestion produced in the gums, which adds to the general nourishment of the teeth in process of development. Good teeth depend upon adequate nutrition and certainly adequate nutrition is dependent upon the teeth.

Malnutrition is a large factor in the production of tuberculosis, adenitis, mental defects, anemia, defects in vision, protracted convalescence from disease, and impaired resistance to the infectious diseases. The economic and educational value of nutrition may be appreciated from the fact that children with defective teeth take $8\frac{1}{2}$ years to go through 8 grades of school, while children with enlarged glands require 9.2 years to go through the same grades. It hardly seems necessary to comment upon the rate of illness as it occurs among children in the primary schools and the secondary schools. A large factor in the retardation of children in their progress through the elementary schools is the absences due to ill health, and a large part of this ill health is due to malnutrition of the child.

I recognize the fact that the home environment cannot be wholly remedied as far as sanitation, ventilation, facilities for sleeping and rest are concerned, but supplemental feeding will strengthen the home so as to lessen the dangers from the other unhygienic conditions. The school luncheon may supply foods yielding nutrients deemed necessary for growing children, but which are not contained in the home dietaries. With the careful adjustment of the feeding conditions not alone does physical growth ensue, but mental development must follow. Halleck has epigrammatically stated the problem by remarking that if a child have a skim milk diet, he will have skim milk thoughts.

Physical education must take account of factors that are related to physical development, and if one recognizes the wisdom of feeding the anemic, the tuberculous and the crippled, is it not equally desirable to feed the brothers of these same children to lessen the likelihood of their physical deterioration?

The Principal of one of our large anemic classes has called attention to the great mental improvement of the children in that class, in addition to their physical development. He notes that the children are better able to work in the late morning hours and in the afternoon than when they came to school. Miss Farrell, who has had charge of the un-graded classes, attests the advantages accruing to mental defectives who are returned to their grades after proper feeding. Superintendent Maxwell in

his Tenth Report states that 60 per cent. of the defectives suffer from malnutrition. As an economic measure of reducing the number of special classes, it is much cheaper to supply school luncheons than to provide separate buildings and special teachers and in part disorganize the work of the school. Lord Dufferin has remarked that "our mental functions, our memories, our attention, our power of continuous application are even more dependent for vigor and vitality on the general condition of our health than is the play of our muscles." It becomes imperative to supply the foods essential for improving the general vitality of our school children in order that the educational system may be made most effective in giving the education for which they are established.

Underfed children are more vulnerable to disease, more susceptible to protracted colds and bronchitis and tonsilitis; are more likely to suffer from infectious diseases which occasion prolonged absences from the school and frequently lessen the efficiency of the school system. Weak musculature, sluggish circulation, chorea and functional disorders of all kinds are far more common among the underfed than among any other type of children. The recognized underlying factor in chorea is a neurotic constitution, anemia, and some severe disturbance of nutrition. The New York Committee on the Physical Welfare of School Children found 26.2 per cent. of chorea in children suffering from malnutrition as opposed to 3.6 per cent. for the 1400 children studied. This same Committee found that malnutrition occurred to the extent of 10.4 per cent. among 1400 children in October, and 12.9 per cent. in April among 990 children reexamined. This shows the deterioration of children during the course of school year due to inadequate home feeding.

School luncheons in secondary schools really exist as a matter of convenience, and can in no way be regarded as part of the health question. A lunch room is provided for the elect of school children who come from homes better provided with the good things in life, and from families whose standard of living and income is such as to permit the continuance of the children at the school for a longer period of time.

At the present time we hear considerable regarding ventilation in the public schools, and there is a general movement to secure a lower temperature in the school rooms. Among well fed children it is easier to secure the reduction of temperature. It is practically an impossibility to place children in sedentary postures, in open air classes, without supplying a larger amount of food in order to supply the requisite amount of bodily heat that is essential to offset the climatic temperature. No open air classes at present exist without supplemental feeding. School lunches insure better digestion of food and less bolting. There is no hustle, no fear of lateness or running to school with articles of food to be eaten on the way. It is a practical measure for eliminating the unwholesome diets which are all too frequently secured from the pushcarts by those who are unable to receive a lunch at home.

Even the question of flat foot is not always a question of muscle, as much as it is a question of relaxation from under-nourishment. It has been estimated that 40 per cent. of our children in high schools suffer from flat foot, and it is fair to assume that a still larger proportion of this difficulty is to be found among the children of the elementary schools who are 12 times as numerous.

The purpose of the school lunch is not to satisfy acute hunger, but to serve in part to relieve the chronic underfeeding of school children. It is rather difficult to secure figures showing the amount of under-nourishment that there is among children in the elementary schools, but it is fair to take the statistics gathered by various observers. For example, Gershel has studied Jewish children, which figures are germane to New York City, inasmuch as there are over 650,000 Jews in New York City. He shows that the dependent Jewish boys grow 14.86 inches from their 5th to their 15th year, while Bowditch shows that the Boston boys grow during the same period 20.8 inches, while according to Porter, St. Louis boys grow 18.1 inches, and the English Anthropological Committee find 21 inches, the boy's growth during this period of life. At five years of age the average Jewish dependent boy is 1.6 inches shorter than Boas, average; at ten and a half years he is 1.68 inches behind; at eleven and a half years, 3.40 inches; at fourteen and a half years, 5.58 inches; and at

fifteen and a half, 7.9 inches behind the average for boys of the same age according to Boas.

Gershel accounts for this by stating that during "the important age of puberty he had undergone many sufferings and privations at an age when freedom and proper nourishment are absolute essentials." The increase of weight is an excellent index of health as a general rule. It has long been known that boys of the favored classes are heavier than boys of the same age coming from the industrial classes. Imperfect nutrition may retard growth and weight in itself is not a full index of good health. Burk has published the study of 68,000 children from Boston, St. Louis and Milwaukee, whose average increase of weight was 5 lbs. a year to the 12th year. At twelve and a half it was 6.2 lbs., while Gershel's Jewish dependents increase 4.87 lbs.; at thirteen and one-half years was 7.9, Gershel's 4.39; at fourteen and a half years 10.4 lbs., Gershel's 4.46; and at fifteen and a half years 12.2 lbs., Gershel's 7.34. The retardation of weight for the dependent boys is especially noticeable from the tenth to the fourteenth year. The general gain in weight that may be brought about by a school lunch has been shown by the experience of the New York Lunch Committee where in three months there was an average gain of $10\frac{1}{2}$ oz. for those children adjudged to be suffering from malnutrition who took the school lunch as opposed to $3\frac{2}{5}$ oz. for the same period of time among the children also adjudged to be suffering from malnutrition but who failed to take advantage of the lunches at the school. The degree and underweight of the children adjudged to be suffering from malnutrition may be appreciated by the fact that out of 262 children only 44 were at or above the normal weight for their age.

The economic status of high school students according to the U. S. Bureau of Education, shows that only 16 per cent. of the children in the secondary schools come from families with an income below \$750 per annum. This was based upon the reports from 1473 schools which investigated the first 25 students in their Freshman classes. The social status in our elementary schools reveals a far different economic standard.

At the present time elementary lunches exist in almost all civilized countries with the exception of the United States. In England, Denmark, Sweden, France, Italy, etc., the school lunches are regarded as educational measures. The educational advantages arise from the general improvement in the physical condition of the children taking the lunches. Of 2051 children examined in two of our New York schools, 283 or 13.3 per cent. were said to be suffering from malnutrition. We found also that 10 per cent. of the mothers of the children worked outside of the home and consequently were not home at noon to offer food to their children. From an analysis of the dietaries used in the home for the children 71 per cent. of the families under observation were regarded as supplying insufficient nourishment for their children; 64 per cent. of the malnutrition cases came from families with an income below \$16 a week. The New York Committee on the Welfare of School Children found that 41 per cent. of malnutrition of children arose in the children from families with incomes of less than \$16 a week. 75 per cent. of the children taking luncheons came from families with incomes under \$16 a week. During 1909 and 1910, 252,254 children were given thorough physical examinations. Malnutrition was found in 8054; chorea in 821; tuberculous nodes in 997; pulmonary diseases in 1964; orthopedic defects in 1728; defective mentality in 691; a total of 14,255. Of defects of the teeth there were 135,186. Taking this proportion of defects found in only one-third of the children of the elementary schools, and applying the same ratio to the entire number of children in the elementary schools there would be 42,765 children in elementary schools with these few physical defects exclusive of the dental disturbances. This represents almost as many children as there were in all the secondary schools of the city.

To promote physical growth and mental development are but two sides of the same problem. To accomplish the greatest good to the greatest number the most stress must be laid on the growth and development of the children during the pre-pubertal period or the years given to life and work in the elementary schools. As a factor in medical education the dietetic side of the child's

life demands attention. For this reason an available school lunch is more essential in the elementary schools than in the secondary schools.

230 WEST 97TH STREET.

DISCUSSION.

Dr. L. L. Button, Rochester:

The poorly nourished child is not the only one that we in Rochester find can be helped by feeding. That the incorrigible child also behaves much better when fed, is also found to be a fact.

Dr. Baker, West Chester:

I think a question that might come before this body is, what shall be done with the children in the evening when the mother is not in position to reach out with them and give them the entertainment they want? The rich mother is able to do things for the social side of the child. The poor woman feels the same need but cannot supply it. When the child does not find this entertainment in the home, the dance hall, the moving picture shows and conditions that demoralize claim them in the evening.

Dr. Wile, closing:

We have a three cent lunch. This pays all the cost of the food and covers all expense, except the cost of administration and distribution. For the Irish children we have an Irish cook. The Irish will not eat their soup thick, and the Italians will not eat theirs thin. Each nationality forms a study unto itself. We try to use the materials essential for the children's development. We try to give one-third the amount of food that the child should receive in 24 hours. We make the estimate upon the age of a child of ten as the older children are getting foods from other sources. Estimating upon a basis of 1875 to 1900 calories, we give as a minimum amount, 445 calories. We consider first, the palate and second the question of economy. Then comes the question of facility in distribution. We have to use the best Italian oil—no common cottonseed oil for Italian children. For an extra penny the children may get a particular article of food which they wish from the extra foods available. With our Italian children we also use the cheese products. With the Irish children we tried clam chowder, and plain soups leaving in the meat finely chopped. All lunches are paid for either by the children or by some charitable organization caring for the family whose child is at the school where lunches are available. Some of the youngsters receive the lunches in payment for their services during the luncheon period. All the steps of the serving of the lunches are taken by the children.

XIX.

CLASSIFICATION OF THE FEEBLE-MINDED BASED ON MENTAL AGE.

By A. C. ROGERS, M.D., Faribault, Minn., Superintendent of the Minnesota School for Feeble-Minded and Colony for Epileptics.

All who for the first time give attention to the literature and treatment of mental defectives are puzzled and confused by the lack of uniformity observed by writers and experienced workers in this field, both in the nomenclature adopted and classifications followed. It is the purpose of this paper to call attention (1st) to the present tendency of the authorities to approximate uniformity as to the fundamental conceptions involved, (2nd) the long recognized need for some means of comparing feeble-minded with normal children at various stages of development, and (3rd) recent contributions to child study that seem to furnish the foundation required for developing a very satisfactory psychological classification of scientific value.

It is unnecessary to present in full the various schemes for classification that have been proposed,¹ and the writer will only refer to such features of a few that have gained substantial recognition and standing in the profession as may be necessary to make the situation clear.

We will consider first the fundamental conceptions concerning which there is a very general agreement. The *first* has reference to the general but constant characteristic of the ensemble of infirmities that we now speak of as feeble-mindedness, *viz.*, that it is *mental incapacity from arrested development* more or less complete, whether the cause is (1) lack of potency in the germ plasm from inheritance; (2) interruption of the biologic evolution in utero from (a) toxic interference or (b) deficient nutrition; or (3) an arrest of development, more or less extensive, in the cerebro-spinal axis after birth from (a) inflammatory processes, (b) toxic influence, or (c) deficient nutrition. The mental incapacity varies in different individuals from completeness so that the existence is vegetative only, to merely a lack of coördination between the affective intellectual and volitional faculties, so that the individual is disqualified for harmonious social relations.

The recognition of this constant characteristic is so universal that I shall not cite authorities, except to call attention to this illuminating statement of Dr. H. B. Wilbur, when discussing the possibilities of a pathologic classification.²

It should be borne in mind that the essential fact of idiocy is the mental deficiency. That the point of interest for us is the degree to which this condition can be obviated. Furthermore, it is dependent upon physical conditions, whether physiologic or pathologic, that are chronic or organic—slowly produced structural changes, when pathologic—and so, as a rule, beyond the reach of remedial means. The sphere of these, when used in the treatment, is almost exclusively confined to ameliorating the accessory maladies.

The actual work of obviating the condition of idiocy is an educational one, using the term in a broad sense; and if any favorable effect is produced upon abnormal organic states, it will ordinarily be through the reflex action of properly adjusted mental exercises.

This clearly separates this group of people from the insane—in whom the mental functions deviate from normal after the evolution of physical growth has been completed. The condition is thus recognized as a *defect*, not a disease.

The *second* conception of this condition is that the mental incapacity when profound co-exists with and depends upon an arrest of physical development—by which the motor and reflex activities are deficient or incoördinated—the processes of physiological evolution in childhood being retarded or entirely arrested. The recognition of the interdependence of the mental and physiological infirmities is important, not only for a sound basis for a rational comprehension of the general condition, but because the whole system of training of the feeble-minded is based upon it. The exposition of this fact and the enunciation of the educational principles deduced from it constitute Seguin's great contribution to pedagogics, general³ as well as special. Seguin thus graphically depicts the analogy between the normal and the idiot infant.⁴

The majority of young idiots do not differ very sensibly from common babies; because the power of both may be expressed by the same verb, they cannot. But to-morrow the well infant will use his hands, the idiot will allow his to hang in half flexion; the first will move his head at will, the second will toss it about; the look of the former penetrates every day farther than the domain of the touch, that of the latter has no straight dart and wanders from the inner to the outer canthus; the one will sit erect on his spine, the

other shall remain recumbent where left; the first will laugh in your face with a contagious will, the second shall not be moved into an intellectual or social expression by any provocation whatever. And each day carves more deeply the differential characters of both: not by making the idiot worse, unless from bad habits gotten by neglect, but by the hourly progress of the other. Idiocy so viewed from its origin is a continuance of the isolation and helplessness of babyhood under ampler forms and obsolete proportions. Compared unavoidably with children of his age, the idiot seems to grow worse every day, his tardy improvement looking like backward steps. With his incapacity of action, of expression, of feeling, he makes a sickening sight indeed by the side of a bright child entering into the intricacies of life as on an open playground.

As a *third* conception, we should next note that there has been a gradual approach by writers toward a substantial agreement in the rough psycho-physiologic grading of mental deficientes into three groups, and the use of terms by which these groups are known.

The term "idiots" is now universally applied to the individuals of the lowest group, who are entirely dependent. "Imbecility" applied by Seguin to acquired cases, where some mental development had preceded the final arrest, is now generally applied to the intermediate grade.

There is less general agreement as to the proper term by which the upper group shall be designated. In England the term "feeble-minded" is applied to the latter by the Report of the Royal Commission of 1904 when considering adults; and "mentally deficient children" when considering non-adults.

The terms Aments,⁵ Mental Defectives,⁶ Mentally Deficient Children⁷ and Feeble-minded^{8,9} are variously used for the whole class. In the United States the three groups are generally recognized, the lower third as *idiots*, the intermediate grade as *imbeciles*, and the upper third as high-grade *feeble-minded* (lately, *morons*), the term *feeble-minded* being applied generically to the whole class.

Ireland, who put especial stress on the value of a pathological classification, says: "Mental Deficiency is the most serious of the symptoms or consequences of the diseased conditions. It is of great importance that the degree of mental feebleness should be defined. Hence, the necessity of psychic definitions like

idiot, imbecile and feeble-minded, indicating three degrees of mental obtuseness."¹⁰

Bianchi,¹¹ who terms the general condition Phrenesthesia, says:

We cannot free ourselves from the traditional nomenclature of idiots, imbeciles and weak-minded, adopted now for a long time by the majority of writers; but it must be distinctly understood that we do not mean to signify by these names well distinguished groups, but simply strong differences of intermediated and extreme degrees of arrest of development.

Barr's classification¹² differs more in appearance than reality from the tripartite scheme, using the terms Idiot, Idio-imbecile, Moral Imbecile and Mentally Feeble. Admitting that it would not be difficult upon establishing some uniform standard—to which all would subscribe—to make quite a number of groups of feeble-minded differing essentially in mental capacity, and, while the American workers have recognized the apt naming of a small group as "idio-imbecile" "improvable in self-help and helpfulness, etc.," the author evidently only intended it as a sub-group. Again, whatever one's view concerning the scientific basis of the term "moral imbecile," and much can be said in its favor as yet, though Fernald's term "Defective Delinquent" is preferable, as adequate without raising the other question—his place in the intellectual scale should first be fixed; that is, he would be first an imbecile or a high-grade feeble-minded (Moron). Barr's "Backward or Mentally Feeble"—"mental processes normal but requiring special training and environment, etc."—really form a very small group, a sub-group of the morons, if indeed in the final analysis it would not be found that the class to which he refers belongs to the "Retarded" group of the schools and educable in the special classes. Thus Barr's grouping, as stated above, requires but little adjustment to line up with the generally accepted view.

Tredgold says:¹³

It is essential, both for purposes of description and administration, that a division should be made, and this, on the whole, is best done by means of three terms which have long been in use—namely, *Feeble-mindedness*, *Imbecility*, and *Idiocy*. To one or other of these degrees we may relegate all ailments, although it is to be remembered that the boundary lines are by no

means distinct, and that the one gradually merges into the other. We may, indeed, if necessary, further subdivide each of them into three others, and thus describe high-, medium-, and low-grade idiocy, imbecility, and feeble-mindedness respectively.

The Royal Commission of 1904 gave an additional stability to the triunal grouping by announcing a set of definitions as follows:

A feeble-minded person (our moron) is:

One who is capable of earning a living under favorable circumstances, but is incapable, from mental defect existing from birth, or from an early age, (a) of competing on equal terms with his normal fellows; or (b) of managing himself and his affairs with ordinary prudence.

An imbecile is:

One who, by reason of mental defect existing from birth, or from an early age, is incapable of earning his own living, but is capable of guarding himself against common physical dangers.

An idiot is:

A person so deeply defective in mind from birth, or from an early age, that he is unable to guard himself against common physical dangers.

In addition to this, and as completing the series of definitions, Tredgold¹⁸ defines the condition characteristic of the whole class (Amentia) as:

A state of mental defect from birth, or from an early age, due to incomplete cerebral development, in consequence of which the person affected is unable to perform his duties as a member of society in the position of life to which he is born.

Binet used the terms Idiot, Imbecile and Debile.

Having made it clear that the leading writers upon this subject agree substantially upon the grouping into three classes, and are not far apart in the use of the terms, though there has been lacking a clear definition of boundaries—it only remains to add that there is a natural basis for this grouping from the standpoint of speech. Leaving out of consideration the feeble-minded children with special speech defects and the language “savants” (rare), the rule may be roughly stated in this way, *viz.*, idiots have no language; imbeciles are limited to use of words, phrases and short sentences, expressions of incomplete and disconnected ideas; while morons use language in the complete sentence form, follow

and produce the "flow of speech," limited only by their individual ranges of knowledge.

We will now consider the *comparison of feeble-mindedness with normal mindedness* in children.

The writer was impressed, while still young in the work for the feeble-minded, with the desirability of having prepared a scheme showing the natural evolution of the mental faculties of normal children with reference to their chronologic age as a guide to the grading or the retardation of the feeble-minded. In view of the work of modern psychologists along this line and its application to the study of the feeble-minded, to be referred to more specifically later—it is of special interest to note the following statements, by writers on this subject.

Speaking of the high grade, Down says:¹⁴

The test which I have found most useful is one suggested in the first instance by Dr. Charles West. In any given case we have to ask ourselves, can we in imagination put back the age two or more years and arrive thus at a time perfectly consistent with the mental condition of our patient? If he be a backward child, we shall have no difficulty in saying what period of life would be in harmony with his state. If, however, he be an idiot, there is no amount of imaginary antedated age to which the present condition of the child corresponds.

Shuttleworth says:¹⁵

The best estimate will be obtained by comparing the patient with a normal child of similar age. Thus tested, a boy of ten will sometimes be found on an intellectual level with the ordinary child of five.

Duncan and Millard state:¹⁶

"It is a very striking method of showing the mental deficiency of a member of any one of these classes to compare its mental gifts with those of children of perfect mind at younger ages. Thus a boy of the fourth class,¹⁷ aged eighteen, may not have greater mental power than a perfect child of four years; he is to all intents and purposes four years old, and dull for his age. An idiot of the second class, of eight years of age, may not be more than eighteen months old, when compared with normal children, while the gaiety and spontaneousness are wanting."

We will now consider the recent contribution of psychology to the problem of classifying the feeble-minded.

The recent advances in child study by which the stages of intellectual development during normal childhood are expressed

in terms of mental capability, determined by simple laboratory tests, have made it possible, by means of the same tests, to determine approximately the mental capacity of feeble-minded persons and thus express it in terms of mental age of normal children. I refer especially to the tests devised by Binet and Simon of Paris and first suggested to the American Association for the Study of the Feeble-minded by Dr. H. H. Goddard in June, 1908.¹⁸ The Association in the following year, as the result of the report of a committee¹⁹ on the subject, adopted a tentative classification based upon the use of these tests and suggested the term "moron" for the highest group. The whole subject was then left open for further investigation and discussion.

The scheme was as follows:

CLASSIFICATION OF FEEBLE-MINDED TENTATIVELY ADOPTED BY THE AMERICAN ASSOCIATION FOR THE STUDY OF THE FEEBLE-MINDED.

Descriptive terms.		On scale of 10.	Mental age as determined by Binet tests.
A. NORMAL:		10	13
B. FEEBLE-MINDED:			
Morons	High grade.....	9	8-12
	Middle grade.....	8	
	Low grade.....	7	
Imbeciles	High grade.....	6	3-7
	Middle grade.....	5	
	Low grade.....	4	
Idiots	High grade.....	3	0-2
	Middle grade.....	2	
	Low grade.....	1	

As the system of tests—these or their equivalents—is fundamental to a practical application of the classification in detail, the first thing to scrutinize is their reliability. For our purposes there are two phases to this question of reliability; *first*, do they afford a correct means of determining the intellectual levels of normal children at all annual stages of growth from *one* to *thirteen*;

years; and *second*, is this age scale practicable for registering the mental capacities of the feeble-minded?

As to the first point, it is a problem for the psychologists and the very extensive discussion which they have carried on during the last two years is witness that they are not neglecting their duty in this regard. The writer has followed enough of this discussion to note that while some of the details of the Binet-Simon tests are not considered perfectly adapted to the specific years for which they are intended, the most severe critics do not invalidate the system and at most only suggest certain improvements or modifications in the minor details. As to the practicability of the mental age scale for classifying feeble-minded, any *readily applied* scale of intelligence that could be used for *all* feeble-minded has been a long felt want and one that enables the examiner to compare feeble-minded with normal children, has a supreme value in that the mental status is *at once* comprehended by *every one*, and a *universal standard* is thereby established. The writer has already referred to the expressed desire for something of this kind by several workers with this class.

After an experience with the Binet-Simon tests of over one year, during which time they have been used in the careful mental examination of 1300 cases of all grades in the Minnesota School for Feeble-minded and Colony for Epileptics by a trained psychologist of sane judgment, judicial temperament and high professional standing, Dr. Fred Kuhlmann, the writer feels that Faribault can add its testimony to that of Vineland, where Goddard made the first institution survey—400 cases—²⁰, and Lincoln (Illinois) where Huey followed in testing “most of the brightest children”²¹ in an institution population of 1300, that this scheme of testing and classifying is a positive step forward in a rational classification of the feeble-minded, and its aid is a comfort to the expert in making plain to the parents and friends what he recognizes without it. The grouping by mental ages, as shown by the above table, into the general triunal mental classification tends to clarify rather than to add confusion to the previously developed scheme, by standardizing the lines of separation, and, what is of most importance, affords a ready means of making a

quick diagnosis. From this sort of examination, the medical examination and the field survey of heredity and social environment from which the child is received, one is able to secure the most complete data possible for determining the prognosis, and the intelligent planning of training and treatment.

The writer has avoided so far the entire subject of pathology, not because of any disposition to ignore its value, but because it has seemed of most importance that the new mental classification be first made clear. To it the other data can be affixed with a clearer idea of its relative value, both as to prognosis and the relative number of persons involved.

In the matter of numbers, for instance, one would suppose from the prominence given by most writers to certain pathologic types, such as Cretins, Mongolians, Microcephalics and Hydrocephalics, that they represented the great majority of feeble-minded children, while, as a matter of fact, they constitute but a very small percentage of them. In the institution of which the writer has charge, out of a population of about 1400 (including epileptics) there are only about 3 per cent. all told of the four types above enumerated.

On the other hand, a knowledge of the type is exceedingly important. All the data concerning the pathology and the etiology is valuable, and the skill of the physician, psychologist and teacher must be joined in order to realize the best training results. For instance, as a rule, the congenital case is more susceptible of improvement under training than the inflammatory or sclerotic type of acquired defectiveness. The Mongolian's possibilities are quite well defined and his low life expectancy long recognized. Not only is the physiologic and pathologic data of great importance, but it must be borne in mind that the danger that it will now be overlooked is imminent and must be guarded against. In the new classification, however, there is a place for all this data.

Note the complete picture presented by the statement: "John is a fifteen-year old Mongolian imbecile—mental age 6"; or "Mary is a thirty-year old Microcephalic idiot—mental age 2;" or "William is a moron, a delinquent, eighteen years old—mental age 11—has right hemiplegia from infancy."

The question may properly be asked, does this system of mental tests in itself determine the "defective delinquent," or, in other words, can all who pass the tests for normal intelligence be depended upon to make good citizens in good average environment?²²

The reactions to the Binet tests or their equivalent are only significant of *intellectual* levels.²³ While their value is unquestioned in the field of juvenile delinquency, for quickly detecting the large number that present these low levels, the borderland cases present a more complicated problem that so far has not yielded to any laboratory analysis. Heredity, early environment and their known reaction to social conventions, as of old, are the best factors yet available from which the expert must judge of their future.

REFERENCES.

¹ Barr, "Mental Defectives," Philadelphia, 1904, pp. 78-89, gives a full discussion of the older classifications.

² *Proc. Assoc. Med. Offs. Am. Inst. for Id. and F. M. Pers.*, Vol. I, pp. 33-34.

³ An Italian teacher, Montessori, has recently shown how Seguin's principles of sense training should be applied in the education of all children.

⁴ *Idiocy: And its Treatment.* Teachers College Edition, Columbia University, N. Y., 1907, p. 40.

⁵ Tredgold. ⁶ La Page. ⁷ Shuttleworth and Potts.

⁸ The Royal Commission in its own title. ⁹ Sherlock.

¹⁰ Ireland, "Mental Affections of Children," p. 39.

¹¹ "Textbook of Psychiatry (McDonald translation)," N. Y., 1906, p. 430.

¹² "Mental Defectives," p. 90. ¹³ "Mental Deficiency," New York, 1908, p. 75.

¹⁴ "Mental Affections of Childhood and Youth," Down, London, 1887, p. 120.

¹⁵ "Mentally Deficient Children," Shuttleworth and Potts, p. 113.

¹⁶ "A Manual, etc., of the Feeble-Minded, Imbecile, and Idiotic," Duncan and Millard, London, 1866, pp. 1, 3-14.

¹⁷ Duncan and Millard made 8 rather arbitrary classes.

¹⁸ *Journal of Psycho-Asthenics*, Vol. XIV, 1909, p. 48.

¹⁹ The committee consisted of Fernald, Goddard, Wylie, Bullard and Murdock. For a fuller discussion of this subject, see *Journal of Psycho-Asthenics*, Vol. XV, Nos. 1 and 2, 1910.

²⁰ Reported, *Journal of Psycho-Asthenics*, Vol. XV, 1910, p. 17. ²¹ *Ibid.*, p. 31.

²² A very interesting study of laboratory methods as an auxiliary to sociologic data, with Juvenile Court cases, has been in progress for over two years in Chicago, under the direction of Dr. Wm. Healy, Director of the Psychopathic Institute. This is a work that gives promise of rich fruitage.

²³ For an analysis of results with Binet tests with high-grade morons, see Huey's "Backward and Feeble-minded Children," Baltimore, 1912.

XX

THE SUBNORMAL SCHOOL CHILD.

By L. T. ROYSTER, M.D., Norfolk, Va.

Since the institution of general and systematic medical inspection of school children, the conception of the delinquent child has undergone a radical change, and through no other single agency will the conduct of large centers of primary education be more completely revolutionized.

The laggard child has long been recognized as the most difficult problem of the graded school; the reason for this is that the true nature of retardation was not understood, for the time is not long past when all children who did not keep up with their studies were considered lazy or bad, hence frequent and severe punishments were the rule, without, however, the lessening of retardation. In sharp contrast to this view, is the modern scientific one which regards delinquent children as belonging to two general classes: the one mentally subnormal—usually from inheritance; the other, and by far the larger, those whose mental faculties are impaired through physical defects. This problem has fortunately engaged the efforts of the most astute minds of all professions, for upon its solution depends the success of modern educational endeavor, the stability of our school system and to a large extent the integrity of the nation.

The laggard child may be described as one possessing an *apparent* inherent or constitutional inability to keep up with the course of study or grade which experience has shown to be the one best suited to the child of a given age. Manifestly a child's age in years is an exceedingly unscientific criterion by which his mental capabilities should be decided, for among children as among adults mentality varies greatly with individuals. It is not uncommon to find a child of six years capable of entering the first or perhaps the second grade of the public school course, or on the other hand one who even at eight or nine years of age with difficulty keeps up with the first-grade work, and yet it is determined *by law* in many states that a child of seven years must

be entered in the first grade. Thus it is seen that the very principle on which entrance is based is conducive to retardation.

I have long been of the opinion that in most of the public school curricula the error has been committed of fitting the course of study not to the capacity of the average pupil but rather to that of the bright one. Under such an arrangement it is evident that the dull pupil starts his school career with a serious handicap.

A certain number of children are of course embarrassed by true, mental defects. These have been divided by investigators, notably Goddard, into three classes: The idiot for which, unfortunately nothing can be done, except to place him in a sanitary and safe environment. The imbecile which has to be dealt with in institutions under competent and trained teachers and attendants. While in the third class belongs the "Moron" which is a child who is usually able to keep up with school work, and may be mentally indistinguishable from the normal child but in whom there is an inherited tendency to defection, usually moral, which may not develop, however, until the school age is past. I do not think that this class has been sufficiently studied to form a definite plan for their management.

Irregular attendance at school is a not inconsiderable cause of retardation and elimination. This may be due to lack of interest on the part of parents; to sickness of the pupil himself or in the family, necessitating the child's remaining at home to care for other members of the family; long quarantine in case of contagious diseases (unfortunately an unavoidable cause) and among the poor, cases are common, where children are being frequently kept away from school, in order to be put to work.

Among other causes which may be mentioned are the overcrowded curriculum, and of special potency the practice of adding too many pupils to the burden of the already overtaxed teacher, thus making it impossible for her to pay attention to the individual needs of the pupil.

Viewed in the light of modern scientific studies, however, the majority of laggards are normal children mentally, but embarrassed by physical defects, which in turn impair the mental faculties to an extent which is sufficient to place them in the sub-

normal class. Ever since the first foundation of society, the criminal has been recognized as belonging to a distinct class of humanity; an individual whose instincts were diverted by nature from their normal channels; but it remained for Lombroso and his followers to study this class along scientific lines with the physical as a basis which in many instances was of more importance than heredity. Similarly ever since we have had schools the laggard has been recognized as so distinct a type that in none of the older pictures of the school-room was there ever absent the dunce-capped boy on the stool in the corner and the begrizzled master standing with rod in hand ready to thrash the lesson into him.

Fortunately for these children the twentieth century scientific principle has come to their aid through the efforts of such men as Drs. Witmer, Gulick, Ayers and others, who have conclusively proven that by correcting existing physical defects the great majority of laggard children could be speedily raised from their position at or near the foot of a repeated grade to the point of completing the course slightly if any behind the average pupil.

From such investigation and the unquestionable results of the same, it will be readily seen that the greater number of these unfortunate laggards are the victims of physical rather than mental defects, and that in their impaired physical condition we are presented with the most far-reaching cause of repetition in school work.

The effects of retardation on school, child and community, are so numerous, and far-reaching that a comprehensive consideration of them would far exceed the limits of this paper. I shall merely suggest a few, hoping thereby to stimulate others to study more exhaustively these complex situations.

The detrimental influence of the presence of one or more pupils in a grade, who are unable to keep abreast of the course of study, is so obvious that it is not necessary for me to dwell on it. The whole class is reflexly retarded for the benefit of the few and the progress of a room is generally unsatisfactory.

Further, this condition promotes laziness and inattention on the part of the bright pupil (only too often themselves a menace

to the room because of their brightness) on account of the ease with which they accomplish their daily task. Also the average pupils lack sufficient incentive of competition to make them above the average which many of them would no doubt become through greater mental activity. Nor does the baneful influence end with the pupils, for it cannot fail to react on the teacher in ultimate discouragement and impaired usefulness.

But what of the effect on the child itself and the community at large? The child is first discouraged and then attention ceases to be fixed because of its inability to grasp the lesson; finally completely disheartened it becomes a drone in the school, retarding the progress of the other pupils, and unable to occupy its time with the routine work of the school, gives vent to the accumulated animal spirits in mischievous pranks which being oft repeated ultimately lower the moral tone of the whole school. In addition to vicious tendencies thus formed, these children who have not kept up with their work and having frequently repeated a grade, soon leave school before the completion of the course, and having failed to learn concentration of energy and self-control, are not only unfitted for the usual vocations, but are even a menace to society; running the gamut of youthful indiscretion, petty offenses against the law, and only too often crimes of the worst sort; subsisting on dishonesty and successfully evading arrest, or on the other hand becoming too bold and less vigilant, are apprehended and become burdens on the Commonwealth as term prisoners in the state penitentiary.

It has been estimated that repeaters in our schools cost—because of repetition—the people of the United States in one year \$27,000,000.00. This is merely while they are attending school. It is of course impossible to compute the cost of their maintenance in after-life, as non-producers and prisoners—hence parasites on the community in which they live. Therefore from an economic standpoint alone this class is deserving of our most careful investigation.

Finally, let us see briefly what can be done for this problematical child; what can be done to help him keep up with the curriculum, to better fit him for life's battles, to make him a useful and wealth-

producing citizen and to lead him into the way of right living and away from vicious habits and his consequent appearance at the juvenile court, the higher court or only too frequently the prison cell.

The first and most important remedial measure is efficient and adequate medical examination of all school children. Such examination should have for its object the correction of defects of vision, by properly fitting glasses, thus relieving eye strain and securing a correct perception of the written or printed word or phrase, without which the conception is faulty, and its reproduction correspondingly inaccurate. Likewise impaired hearing which bears the analogous relation to the spoken language.

The removal of adenoids and tonsils when unusually enlarged or diseased. Careful attention to the teeth, bodily cleanliness, posture at desk, school lighting, and the general hygiene of the school building. All of these should be attended to most carefully during the formative years of the child's school life, for impressions gained at this time are of vital importance, and a faulty primary education can never be corrected, even by the most elaborate higher learning.

No examination of school children is complete without the application of the Binet test for mentality, for only in this way can we fit the grade to the child rather than the child to the grade as is usually done. The school nurse is an indispensable adjunct to medical inspections not only in assisting in the examinations but in carrying the gospel of right living into the home. And I am convinced that so far as is possible the nurse should personally interview the parents, when medical attention is needed, rather than the promiscuous use of the printed notice, which is often misunderstood by the ignorant, causing frequent and unnecessary absences.

The question of individual temperament should be given careful attention in order to determine the natural inclinations of the child. This is perhaps the point most frequently neglected by all teachers.

The modern student of child delinquents, however, does not confine himself to the study of sight and hearing but makes further

observations along broad and concise lines, including such things as the sense of touch, motor control, coördination and the state of nutrition and inquiries into the amount of sleep which the child secures, the amount and character of the exercise taken, his powers of observation and by no means the least of all, his home environment, which is one of the most important factors in the formation of character. Such studies as these and the handling of children along the lines indicated has produced apparently miraculous results, developing average and even bright pupils from those previously considered by their teachers as hopeless laggards. In large centers of population an ungraded school should be maintained where those of unusually lowered capacity may be placed, where the child should be taught and handled according to its individual needs, looked after by the medical examiner separately and minutely and developed along lines in which it is especially deficient. Where the separate school cannot be maintained each building might have a room or there might be a room for each two or three buildings in which one teacher might well handle five or six such children and bring them to a better understanding of the subject matter in hand. One fact which should be borne in mind in the teaching of sub-normal children is that five or six children should always be the limit for each teacher. I am greatly gratified by one important observation which this study has developed and that is the important part played by manual training in the handling of these children, for it not only gives them something to do which is at once instructive and interesting but it teaches observation, care, precision, accuracy, coördination, motor control and economy. Adequate attention to defectiveness cannot be paid without the assistance of district nurses who will follow up the case at home and instruct the parents as to the necessity of having children properly cared for.

The open air school is a promising aid in the furtherance of this cause and I hope to see the time when every school which is erected will have a roof garden or other arrangement for this purpose, while semi-annual promotions are rapidly coming to be the rule. Carefully kept records of the physical condition of

pupils, the amount of improvement, after-treatment, their progress in their studies, etc., are absolutely essential to the efficiency of the undertaking in hand.

It was Gladstone who said that on the health of the people depended the strength of a nation. Our nation is growing from within, countless hordes of immigrants are making daily assaults on our shores, in a friendly warfare, a struggle for that liberty which only America has to offer. In the education of all the people not alone in book knowledge but also in that knowledge which will teach them how to live and thus make us the great and virile nation which God intended that we should be, lies the safety of the nation in the future. Make the people healthy mentally, morally and physically: the nation will be strong. The medical school inspector and especially the visiting nurse who will carry the principles of right living into the home itself can accomplish this.

XXI.

THE TEACHING OF SOCIAL ETHICS, AND ITS RELATION TO THE CONSERVATION OF THE CHILD.

By WINFIELD S. HALL, Ph.D., M.D., Professor of Physiology, Northwestern University
Medical School, Chicago.

The term Social Ethics is a comparatively new one. Its significance is so evident on its face that it hardly needs definition. One assumes that it refers to the right and wrong of social intercourse and that is just what it signifies. While sociology is the science of human society and ethics the science of the right and wrong of human activities, social ethics may be defined as the ground common to ethics and sociology. In short, it deals with the right and wrong of social intercourse in human society.

In order systematically to present this matter, it may be stated that Social Ethics concerns three planes of human activities and relationships: First, the personal plane, which deals with and sets forth personal conditions, personal attitudes and personal habits, which form the basis of and give the trend to the social relations. While the activities in this plane might seem not to be social, as a matter of fact they are basic in their relation to the social and must be considered in this connection. Secondly, the family plane, which deals with and sets forth family relationships in so far as they concern ethics and society. Third, the social plane which deals with the right and wrong of social relationships in human society outside the family.

Social and domestic happiness and well being are so indissolubly linked with ethical standards, ideals and practices that it becomes absolutely essential that all those constructive forces of society pledged to conserve and protect society be marshaled against social wrongs and reinforce social good.

Expressions which have been frequently heard in the last decade as "the social evil," the "venereal peril," etc., indicate the preponderant social wrong from which society suffers and the predominant retribution which nature seems to mete out against this wrong. As a matter of fact, a very large part of ethical wrong

living has to do with the sex life, and is usually manifested in all three planes mentioned above, namely, personal, domestic and social. While it is true that the venereal peril menaces the innocent, as well as the vicious, it is also true that if all people would live absolutely clean and correct sex lives for two generations, venereal disease would become as rare as smallpox or cholera, while now it probably affects in smaller or greater degree at least fifty per cent. of the whole population. These millions suffer either innocently or otherwise, for the sins of others or for their own shortcomings, the saddest of all being the results of inherited taint.

If we may rely upon statistics, the social evil is getting worse rather than better. Even the optimist must admit this, and while he sees commercial, industrial and political conditions improving step by step, he is forced to admit that social conditions are getting worse. We do not have to look far for the cause. A glance at the last two government census reports shows that our population is setting toward the great urban manufacturing centers, large regions of our rural districts barely holding their own in population during the last generation, some actually decreasing. If this centering of the people in great cities and rapidly growing towns could have been controlled, the ills and wrongs might have been largely avoided, but they were not controlled, in fact we are only now discovering the unfortunate tendencies which have been at work. People have huddled together in such close proximity that vegetation is huddled out and breathing spaces contracted. Furthermore, in large districts of our larger cities, the housing of the people is shockingly Bohemian. Where a whole family—parents, grown children, adolescents and younger children—is housed in one room, which one room must serve as kitchen, laundry, dining room, parlor and sleeping room, it goes without saying that young people growing up under such conditions lose or rather never experience the sentiments and feelings associated with modesty and refinement.

Young people in our great industrial and commercial centers are crowded together in the department stores, shops and factories under conditions that are not only unsanitary and unhy-

gienic in many cases, but at the same time may be unwholesome from a social standpoint. After their eight- or nine-hour day under these undesirable conditions we can easily understand why the young people would wish to seek entertainment and recreation from their mechanical and unstimulating shop work at the same time that they seek escape from the wretched home conditions. We are therefore not surprised to see them flocking to the cheap vaudeville and moving picture shows, and to the public dance halls, where they are likely to be subjected to destructive suggestion that will tend to rob them of what little of right standards remain after the effects of their home and shop influences have done their work. Summarizing then, we find that the destructive influences of urban conditions in the housing of the people, in the employment of the people, and in their recreative activities are tending more and more to lower social standards. If conditions are not changed social dissolution will surely follow in a few generations.

These unfortunate conditions mentioned above menace the home. Now the home is the foundation of human society. There could be no church; there could be no State; there could be no educational system without the home. If the home—if the foundation of human society—crumbles, the whole superstructure would come down in ruin, and we would have social anarchy.

But this is not to happen. There is a general awakening. We have been analyzing conditions, diagnosing the social disease. We have determined its etiology. Having found its cause, the rational treatment has already been begun.

A study of the social conditions makes it evident that a vast preponderance of social ills are visited upon the people because of ignorance. Little children fall into error because they have not had the benefit of wise counsel and guidance. Young people make blunders because they are ignorant of personal physiology and hygiene. Older people through ignorance or indifference need education and an awakening. The writer believes that the only rational cure for present social conditions is to be found in education. Wise laws justly and firmly administered will

help. Public institutions for the reclaiming of the fallen will also help. These two measures last named alleviate in a superficial way only. What we must seek to accomplish is to remove the cause so that these ills will not exist and therefore not need alleviation. In the social evil as well as in the drink evil, it is necessary that the education—the rational prophylaxis of the evil—be begun in youth. It is very much easier to keep a young life straight than it is to make it straight once it has become bent and distorted. Let us then emphasize again the paramount importance of education as the great prophylactic agent to protect society from the ills that follow wrong living.

Inasmuch as the difficulties to which we have referred begin in childhood and youth through innocence and ignorance, it must be evident that the education must begin in youth. Those who have given this problem extended study and thought all agree that education in social ethics is a home problem. Parents must teach their children the great truths of life. Coming from parent to child this teaching will be certain to have its two great essentials, namely, sincerity and sympathy. However, we find that a very small proportion of the present generation of parents possess either the requisite information or the necessary inclination to give this instruction.

There must be a transitional period, during which educators, social workers and all the constructive forces of society work together to produce a generation of parents who will possess both the information and the inclination. That means that we must go into the schools and teach the great truths of life to the children and youth. In this great work for society, let us never lose sight of the fact that we are doing this work in our relation of vicarious parenthood. We must school ourselves to feel toward these young people as a parent feels toward his child. The instruction must be given in all seriousness, candor and simplicity. It must be put on the plane of the ideal. There should be an attitude of sympathy toward the pupil. Those who have not had experience in this teaching can hardly conceive how beautifully the young people respond in their intense

attention, and in the seriousness with which they receive the instruction.

The education of the youth in this transitional period should begin in colleges and universities. It may be said in passing that a considerable number of our institutions of higher learning have already made a good start in this teaching. We may look forward with assurance to a time in the near future when all these institutions will recognize their obligation in this direction and will have this instruction given systematically.

Instruction in social ethics and sexual hygiene must also be introduced into the high schools. Most high school pupils are in the earlier period of adolescence. The need for instruction is at no period of life greater than at the threshold of adolescence. The response of the pupil is at no period of life more ready or wholesome. It is, therefore, a matter of the greatest importance that instruction in social ethics and sexual hygiene be introduced into all the high schools of the land at the earliest possible day.

Pupils in the grammar schools need certain facts brought to their attention, and this need is hardly less imperative than is the need in the high school. The girls of the seventh and eighth grade are as a rule coming into adolescence. Probably a large majority of eighth grade girls in general are in their first or second year of puberty. Their mind is filled with questions about life and they instinctively show a sort of hypersensitiveness on sex matters. Their mothers as a rule have not instructed them. The schools must do it.

The problem of the grammar school boy, while less a sex problem than one of inherent barbaric vulgarity, is still one that requires great tact, patience and skill on the part of the teachers. The seventh and eighth grade boy is still in his preadolescent period, still in his period of barbarism. He has not felt the primordial urge in his red blood, but he does show the barbaric tendency to crudeness, rudeness and vulgarity. While we are not going to lose our patience with this boy, nor are we going to become discouraged about him, we are going to extend to him from our elevated position of twentieth century chivalry a sympathetic helping hand that will guide him quickly

through his storm and stress period and help him early to step up out of barbarism into his period of dawning chivalry.

This teaching in the grammar school requires incomparably greater tact and pedagogic skill than the teaching in colleges. It must be done by trained teachers; professional people either physicians or social workers called in from the outside cannot do this work for the simple reason that the number of physicians and social workers who possess the pedagogic skill and knowledge of, and sympathy with, child life is wholly inadequate to meet the requirement even if they were to devote their whole time and energy to it. Besides that the psychic effect on the pupils of calling in somebody from the outside is unwholesome and studiously to be avoided. It enshrouds the whole matter in a haze of mysticism and excites the curiosity and a tendency to talk among themselves with great danger of unwholesome results. This teaching of the great truths of life concerning reproduction and sex must be done by the teachers of the grammar school, but the teachers of the grammar school are not prepared either in their own mental attitude, the information they possess, or in their pedagogic training. The whole field of sex is to a vast majority of teachers a *terra incognita*. For a period of four or five years before we require sex instruction in the grammar schools the subject of social ethics, social hygiene and sexual hygiene should be taught in the normal schools..

The normal school course in social ethics should accomplish three very clearly defined objects: First, to give the pupil teacher a wholesome view-point concerning Social Ethics in all its bearings, displacing false modesty with real modesty and leading the student from the dimly lighted valley of prudish ignorance to the high sun-bathed mountain tops of idealistic virtue. Such a change of mental attitude is wholly and solely a matter of education and is the first thing to accomplish for the pupil teacher. Second, to give the pupil teacher adequate information concerning the biology of reproduction, the physiology and hygiene of the sex apparatus and sex life, also the sociological and ethical principles involved in sex hygiene and social ethics. Third, to train the pupil teacher in the principles of pedagogy of

this particular subject. It may be stated in passing that the teaching of no subject requires greater pedagogic skill and tact than this one. In the presentation of no subject does the teacher require a greater knowledge and insight into the psychology of youth than is required in the teaching of sex hygiene.

After all of the normal schools of a State have had a course in sex hygiene and social ethics presented to every student in the school for a period of four or five years it may be wise and the time may be ripe for requiring this teaching in the grammar school, because by that time there will be many hundreds of teachers in the State who will have been trained for this teaching and the probabilities are strong that almost every village and city school will have on its corps of teachers from one to a half dozen who will have had the benefit of this instruction in the normal school and who will be prepared to give this instruction in an acceptable manner.

Answering the question, when and how shall this instruction be given in the ideal case, let us repeat what was stated above that this is a home problem. Fortunately, Nature points the way with a great shining index. Nature has implanted in the heart of every child the instinct of asking questions. The mother and teacher have only to answer these questions when they are asked, answering briefly and simply and always in a spirit of sympathy and love, to rest assured that they are following not only the plan of Nature but also the plan of the God of Nature.

The first question asked by the child is almost certain to concern his origin. The little five-year-old girl creeps into mamma's lap at eventide and nestles her head on mamma's breast and asks, "Mamma, where did you get me?" Then she waits for mamma's answer. No real mother, under such circumstances, could bring herself to the point of telling the stork story to her child. Such a response to such a question would be unworthy the twentieth century mother. You may be interested to know what one twentieth century mother told her child in response to a similar question. Her little six-year-old boy was brought to his mamma's bedside and introduced to his two-day-old baby sister for whom he had watched and prayed for several months. He was very

happy, God had answered his prayer; presently he asked: "Mamma where did the baby come from?" This was the mother's answer: "Baby sister came out of mamma's body. She was formed within mamma's body, she was formed from materials drawn out of mamma's blood, and that is the reason why mamma's cheek is so pale and mamma's hand so thin and white." The little boy's eyes opened wide with wonder. This story was to him incomparably more wonderful than the stork story would have been. He looked thoughtfully from mamma's pale face to the little baby sister, back and forth several times. Then he asked this question: "Mamma, was I formed within your body too?" The mother answered: "Yes, my boy, you were. You were formed within mamma's body, you were formed out of mamma's blood, and that is the reason why mamma loves her boy so, because she gave her own life's blood for him." The little boy's eyes now took on a far-away look and he seemed to be trying to grasp the great thought of mother sacrifice. He evidently did catch at least a glimmer of the great truth, because after a few moments his eyes welled full of tears and turning to his mamma he threw his arms about her neck and said: "Oh mamma, mamma, I never loved you so much before," and the little boy meant it too, because from that day forth for many weeks he seemed to think of little else during his waking hours than what he could do to help the mother who had been so ready to sacrifice for him. This happened eleven years ago. The boy of six has grown into the young man of seventeen, stalwart, broad-shouldered, deep-chested, hard-muscled, clear of eye, clean of life, and chivalrous. He must be the pride of his father's heart and the joy of his mother's heart. He is a neighbor of mine, and I have watched his development with great satisfaction. His attitude towards all womankind seems to be inspired by instincts of chivalry and honor. That this attitude has been developed by the teaching which his mother has given him from boyhood up, supplemented perhaps by some instruction and example on the part of his father, no one can doubt. Can there be any question that when the time shall come that all boys and young men will have been led into chivalrous young manhood in a similar way and when all girls and

young women shall have received from their parents a training which will give them a reciprocal attitude towards mankind, then the social problem will have been solved? Its solution is a matter of education, pure and simple, and this education must begin in early childhood.

The next question which the child asks as a rule concerns the physical differences between the sexes. Your little six- or seven-year-old girl may come with this question: as to how the mother knows whether her new-born baby is a boy or a girl. This is a fair question and must be answered, otherwise a suspicion of mystery is at once aroused and a gnawing curiosity is developed. The wise mothers in all generations have adopted a very simple method of forestalling this question and presenting in the family conditions which answer the question in the most natural and simple way. I refer to the custom adopted by the wise mothers in all generations of having the little children of the family meet in the nursery at bedtime at least one evening in the week in what some mothers call an "undress parade." Other mothers call it a "bath night frolic." The little boys and girls of the family ranging in age between two and seven or eight years, enter into these frolics with the keenest and most unalloyed pleasure. Never so free of movement, never so happy, and it may be said in passing, never more modest, than when freed from the hampering habiliments with which civilization has clothed us. As recently as four thousand years ago our ancestors were practically nude savages living in the forests of Southeastern Europe and Western Asia. They were children of Nature and like these babies of our twentieth century Aryans so far from being immodest in their nudeness possess what the sociologist recognizes as absolute modesty, that is, modesty so perfect that in the nude they are unconscious of their nakedness.

Incidentally, little six-year-old Margaret is almost certain to note a difference between herself and little Mary, on the one hand, and Jimmie on the other, and will remark in her childlike innocence to her mamma: "Little Jimmie isn't made the same as Mary and I, is he mamma?" And the mamma will answer in a perfectly matter-of-fact tone: "No, little Jimmie is made like all boys and

men, while you and Mary are made like all girls and women." This answers the question for all time so far as Margaret is concerned. In their turn each of the other children will ask similar questions or make similar remarks to be answered in the same matter-of-fact way, and to grow up without morbid curiosity regarding structural differences between the sexes. If some of you are worrying about Margaret's modesty let the writer assure you from the uniform experience of hundreds of mothers with whom he has conferred that when Margaret reaches the age when impulses and instincts of modesty usually appear in a girl, they will dawn in the soul of Margaret as naturally as the rose in the garden blooms in June. If a girl grows up in the atmosphere of modesty and consideration, the atmosphere being determined by the mental attitude and the habits of the older people of the family, rest assured that when the child approaches puberty the instincts and feelings of modesty come into their experience as a natural and inherent heritage of our race.

When the children approach puberty, there should be a parting of the ways for the girls and the boys of the family, the girls coming into a closer comradeship with the mother, while the boys are led and inspired by the father. It is the inherent right of every girl to be led into beautiful exultant womanhood by a loving mother, and it is equally the inherent right of the boy to be led into clean, aggressive, triumphant manhood by a fond father.

As the mother sees her daughter growing rapidly in stature at the age of twelve to fourteen, and recognizes that this sudden growth in stature heralds the approach of womanhood, the mother seeks an opportunity to instruct her daughter in the ideals of womanhood, giving her the facts that she needs to know to guide her through the many problems, personal and social, that confront the adolescent. There are three important lessons that the wise mother teaches her daughter.

The first lesson for the girl to learn is the "Secret of womanhood." The mother may picture the typical twelve-year-old girl in all her lean and lank, awkward, and gawky, clumsiness, self-conscious, ungainly and unprepossessing in the highest degree. This preadolescent girl is in her "ugly duckling" stage of de-

velopment. Now let the mother picture what the girl is to be in four or five short years. Graceful in figure, graceful in every movement of her body, possessed of poise and repose, her rosy cheeks glowing with the red blood of good health, her lustrous eyes luminous with the light of radiant young womanhood. Then the mother reveals to the daughter the secret of this remarkable change and tells her how when the little girl is about thirteen years of age her ovaries begin to prepare a wonderful substance, that was absorbed into the blood and through the blood distributed all over the body where tissues were growing and changing, and that this wonderful substance—this magical stimulus—formed in the body for that purpose causes this remarkable transformation in the little girl's body and no less remarkable a change in her soul, possessed first of purity, that matchless quality that runs like a golden thread through the whole fabric of her life, second, of altruism or unselfishness, that second great quality of the soul of woman, also of other hardly less beautiful qualities that make her soul so beautiful that when once it is really seen one is after that hardly conscious of her body however perfect that may be.

The mother explains to her daughter that this great change that is the first step of developing womanhood is due to a substance formed in her ovaries—formed in her sex apparatus. When the girl knows this great truth, she naturally from that day forth looks upon her sex apparatus as sacred to her womanhood and a few words of counsel from the mother will guard the daughter against permitting or indulging anything that will irritate or excite this part of her body, being assured that such irritation and excitation will disturb the great work which in the plan of the Creator her sex apparatus must do for her womanhood.

The second lesson which a mother teaches her daughter is a simple, clear explanation of the monthly period which is soon to be a part of the daughter's experience. She forestalls fears and forebodings by explaining to the daughter that this experience which may be difficult at first to adjust herself to, is in the plan of the Creator her preparation for future motherhood. As this healthy-minded, perfectly normal, twentieth century girl is look-

ing forward to future motherhood, as a natural and much-to-be-desired experience, her mother's explanation is accepted in the right spirit and the girl looks forward with confidence and serenity toward her approaching estate of womanhood. When it comes, all its experiences are accepted as a matter of course and in a spirit of assurance.

The third lesson which the mother teaches her daughter concerns her relation to her young gentlemen friends. Even though a girl may not formally enter society until she graduates from high school, she is in reality in society as soon as she enters high school. Adolescent high school young people are experiencing the social impulse and yielding to the social instinct. The relations of young people in the high school are in all seriousness social relationships and should be so viewed by all who have any relationship to secondary education. So the girl's mother prepares her early for this new relationship by explaining to her the ideal social relations between young women and young men of her circle. The information that the mother has given her daughter in the first two lessons makes it very evident to this budding woman that her person being sacred to her womanhood she should not permit any familiarities on the part of her young men friends. Parents and teachers, perhaps through the organized agency of a Parent-Teachers Association, will cordially co-operate in the bringing about of ideal social conditions in the high school. All gatherings, whether formal or informal, of high school young people will be chaperoned. This chaperonage should be as wise and tactful as it is constant.

It is the inherent right of every boy, particularly between the ages of ten and fifteen, to have the guidance and the inspiration of his father. During this stage of a boy's development, the pre-adolescent stage, the boy is living over again in his psychic and social development that period of his race when his ancestors were in a barbaric stage of civilization. So the boy of ten to fourteen is in a way a barbarian. He may be cruel and vulgar, he is sure to be blundering and blustering, especially if he is a really, healthy normal boy. His mother and his woman teacher are taxed to the limit of patience with this young barbarian.

It is the time of his life when he needs the firm, kind hand, perhaps the strong arm of a man, to guide, inspire and control him. Boys of this age have the benefit, not only of a father's influence, but also of the influence of a man teacher, perhaps in addition to this the help of boy leaders in Y. M. C. A. or boy scout work. The boy is in his age of hero worship. The robust, the sturdy, the daring, the belligerent experience and exploits of men appeal to him. He quickly scans the gapes of history and picks out as his heroes DAVID the Bear Killer, the Lion Killer, the Giant Killer, the leader of his nation's armies; ALEXANDER THE GREAT (Military Master of the World); CAESAR, Leader of the Legions of Rome; NAPOLEON, dauntless dictator of the destinies of Europe; WASHINGTON, and others of our own National heroes. All of these heroes are fighters. War and the chase are in his blood. Those qualities of his father that appeal to him and lead him to put his father's name on his list of heroes, are not the qualities that appealed and still appeal to his mother to inspire her love and confidence, but they are the qualities of barbaric heroism. Those qualities of physical agility and endurance which helped his father to win athletic victories and break athletic records. They are the qualities that were developed and fostered in war and the chase. So the wise father, the twentieth century father, becomes a chum of his boy not later than his tenth year. He cultivates a real live interest in his boy's activities and aspirations. He attends the track meet between his boy's school and the neighboring schools, acting as referee, umpire or judge on the occasion. He takes half holidays during the summer vacations to join the boys in their ball game in a vacant cow pasture. He goes on short camping trips with his boy and on many a long tramp. In these ways he and his boy become chums, comrades in war and the chase. It makes the boy more mature and thoughtful, more self-reliant and confident, while it rejuvenates and rests the father. Once the boy's confidence and love are inspired, the father sets about systematically to give him three great lessons in life, beginning his instructions where the mother left off.

The first lesson which the father teaches his son is the lesson

of manhood and the secret of virility. He describes what it means for a boy to grow into a man and how after a brief period of lank, awkward, self-conscious clumsiness the boy develops masses of muscles on shoulders and chest, upper arms, forearms, back, hips, thighs, legs. When these muscles come under the control of his will as they should in his early teens he will have received from mother Nature the three B's of young manhood, namely, Bone, Brawn, Brain, so that at eighteen years of age the young man should be able to stand out before the world broad-shouldered, deep-chested, erect, supple, hard-muscled, fiery-eyed and resourceful, full of initiative and will power, ready to get into the world's work. Then the father tells him the secret of manhood and explains about the internal secretion that is prepared in the boy's testicles from his fifteenth year on and that this internal secretion absorbed in the blood and distributed throughout the body causes the development in the youth of all these qualities distinctive of virile manhood, deprived of these sex glands the boy would develop first, into a sissy and finally at twenty-five he would be a slope-shouldered, narrow-chested, flabby-muscled, beardless, squeaky-voiced mollycoddle, absolutely lacking in every instinct and attribute of manhood. When the boy hears this from his father he readily understands that his sex apparatus is sacred to his manhood and that he should never do anything to irritate or excite it for fear of disturbing Nature's plan for his development of all these matchless qualities of manhood.

The second lesson which the father teaches his son is a simple, clear explanation of the nocturnal emissions or so-called "wet dreams." The father explains that every two to four weeks a liquid will flow from the boy's sex apparatus. This usually happens when the boy is sound asleep. He suddenly awakens to find that what has happened is a very simple little physiological phenomena that is perfectly natural and simply means a relieving of local tension. All the boy needs to do about it is to forget it and pay no attention to it. However, it is very important that the boy understands about this experience, which will be periodical and may last for many years, otherwise he is likely

to worry about it, assuming that he is subject to a sexual weakness. Not only do young men frequently misunderstand this matter, but it is frequently misunderstood and misinterpreted by others. It is just as important for the young man's mother to understand this phenomenon in the sex life of her son as it is for the father to understand about the monthly period of his daughter.

The third lesson which the father teaches his son concerns the social relationships with his girl friends. Helped by a little wise guidance and instruction from his parents the boy readily adapts himself to the impulses of chivalry which are stirring in his breast. While these impulses are of inestimable value in developing the highest social qualities they need guidance. It is the unguided and unschooled social instinct that leads the young man to make an advance toward familiarity in his relation with his girl friends. The impulse to protection when unguided would prompt him to put his arm about his girl friend. The same impulse under guidance inspires in him the attitude and the daring of the chivalrous twentieth century knight doing homage to a lady of the court ready to endanger his life to protect her and ready to fight to the death in defense of her name and honor.

Where parents and teachers co-operate to teach the youth these great lessons of life we insure the conservation, in the child of the race, of those qualities that make for the fullest manhood and womanhood. Physical health is preserved and physical stamina developed. Psychical poise is maintained and the highest ambitions inspired. The youth of the race is conserved through this early and tactful teaching of the great laws of life.

XXII.

THE COLORADO METHOD FOR THE EXAMINATION AND CARE OF PUBLIC SCHOOL CHILDREN.

By MARY ELIZABETH BATES, M.D., Denver, President Humane Education Society.

The following is the Colorado law:

AN ACT PROVIDING FOR THE EXAMINATION AND CARE OF CHILDREN IN THE PUBLIC SCHOOLS, AND MAKING AN APPROPRIATION IN CONNECTION THEREWITH.

Be it Enacted by the General Assembly of the State of Colorado:

Section 1. The State Superintendent of Public Instruction shall prepare or cause to be prepared suitable test cards, blanks, record books, and other needful appliances and supplies to be used in testing the sight, hearing and breathing of pupils in the public schools, and the necessary instructions for their use; and shall furnish the same free of expense to every public school in the State. The teacher or principal in every public school, or where there is no principal, the county superintendent, shall, during the first month of each school year, test the sight, hearing and breathing of all pupils under his charge, *such examination to be made by observation without using drugs or instruments, and without coming in contact with said child*; and keep a record of such examinations according to the instructions furnished and make a written report of such examinations to the State Superintendent of Public Instruction as he may require.¹

Sec. 2. Every teacher in the public schools shall report the mental, moral and physical defectiveness of any child under his supervision, as soon as such defectiveness is apparent, to the principal or, where there is no principal, to the county superintendent. Such principal or county superintendent shall promptly notify the parents or guardian of each child found to be defective, of the child's defectiveness, and shall recommend to such parents or guardian that such child be thoroughly examined as soon as possible by a competent physician or surgeon with special reference to the eyes, ears, nose, throat, teeth and spine.

If the parents or guardian of such child shall fail, neglect or refuse to have such examination made and treatment begun within a reasonable time after such notice has been given, the said principal or superintendent shall notify the State Bureau of Child and Animal Protection of the facts; *Providing, however, that whenever it shall be made to appear to the said principal or superintendent, upon the written statement of the parent or guardian of said child, that such parent or guardian has not the necessary funds wherewith to pay the expenses of such examination and treatment, the said principal or superintendent shall cause*

¹ Adapted from Dr. Frank Allport's Vermont law.

such examination and treatment to be made by the county physician of the district wherein said child resides; and it shall be the duty of such county physician to make such examination and treatment, and if he be unable to properly treat such child he shall forthwith report such fact to the county commissioners of the county with his recommendation.

Sec. 3. The State Auditor is hereby directed to draw his order for such sums and at such times as the State Superintendent of Public Instruction may require to carry out the provisions of this act. The total expenses under this act shall not exceed one thousand (\$1,000.00) dollars in any biennial period ending November 30th.

The provisions in italics are the only amendments, made by the Senate and concurred in by the House, to the bill as I wrote it and as it was introduced in the House by Hon. Alma V. Lafferty, the one woman member of the Assembly.

Section 2, without its amendment, was included in a bill to collate the School Laws, introduced in the previous Assembly, but failed of passage.

It is the duty of the State Bureau of Child and Animal Protection to promote the interests of all the children in the State, to secure the enactment and enforcement of legislation for their benefit and to have especial care of the abused, neglected, dependent, delinquent and defective children. For this reason it was made the especial duty of the Bureau of Child and Animal Protection to enforce the "Physical Examination (Bates) law," at the suggestion of its executive officer, the Secretary, Mr. E. K. Whitehead, who has long been particularly interested in what might be termed prophylactic child protection. The Bureau of Child and Animal Protection has endeavored to promote the physical welfare of the children coming under its especial care, but has been able to do so universally and more effectively since the passage of this law. The Bureau has brought several prosecutions for failure to conform to the statute but has not brought any such cases in the Juvenile Court of Denver.

The Denver Juvenile Court has a corps of special officers designated to look after the delinquent children of this city, but has never paid any attention to possible physical defectiveness as a cause of delinquency, nor has it made any attempt to remedy such defectiveness either by recourse to this law or in any other way.

Before the measure was introduced it had been endorsed without suggestion of change by the State Superintendent of Public Instruction, Mrs. Katherine M. Cook; the Superintendent of the Denver Public Schools, Dr. Charles E. Chadsey; the Executive Committee of the State Teachers' Association and the Association itself; the State Ophthalmological Society; the Democratic Women's Legislative Committee; and the Colorado Federated Women's Clubs' Legislative Committee but none of them had any part in its passage.

There was no real opposition in the legislature but the bill happened to present a convenient excuse for filibustering tactics and the constant attention it required for safe conduct through every possible legislative procedure devolved upon Mrs. Lafferty and myself.

Governor Shafroth promptly signed it, and it went into effect in July, 1909.

The circular letter of instructions on the *modus operandi* of the law, the record blanks, tests, letters to parents, etc., were prepared by the then State Superintendent of Public Instruction, Mrs. Katherine M. Cook and myself, and they are still in use. Tests and blanks in use in other states and cities were consulted and adapted to our conditions and purposes. The text thereof is as follows, and the Colorado method is best comprehended by reading them in their entirety.

INSTRUCTIONS

ON THE LAW FOR THE EXAMINATION AND CARE OF PUBLIC SCHOOL CHILDREN.

[Circular Letter.]

The Teachers will fill out the blanks in the Teachers' Record Cards as instructed, using the carbon paper to make two copies at the same time; the one marked "Principal or County Superintendent" is to be sent to those officials, and the other marked "Teacher's Stub" is to be left in the book for subsequent reference, comparison and summary.

Use a good, sharp pointed pencil with force enough to produce clear copies not easily erasible.

If it becomes necessary to re-record a pupil during the same school year, affix the second stub to the stub of first record.

The Teacher will place a * in red ink after the names of pupils whom she considers it desirable or necessary to refer for medical attention in accordance with the law, and indicate the reason therefore by a * opposite the number in the margin of the Record Card where defectiveness is indicated.

The Principal or County Superintendent will file the Teachers' Record Cards when received with the Notice of Parents' Book.

The Record Cards of pupils whose parents the Principal or County Superintendent notify are to be attached to the Stub of the corresponding Notice to Parent or Guardian, as directed thereon.

The Principal or County Superintendent will send the Notices to Parents or Guardians in accordance with the law (Session Laws of 1909, page 490), and record same on the Record Card received from the Teachers.

Should the Principal or County Superintendent require medical care for pupils not advised by the Teacher or not require it of any so recommended, he will notify the Teacher to that effect, with date of sending of Notice. In lieu of information to the contrary the Teacher will assume that Notices have been sent when marked therefor on her Record Card, and will date the "reasonable time" allowed for the return of the Physician's Report from the date of the sending of the Record Card to the Principal or County Superintendent.

The Physician's Report is to be returned to the Teacher. If within a reasonable time the Physician's Report is not received by the Teacher or proves to be unsatisfactory; or where in lieu thereof the parent or guardian sends a written statement that he has not the necessary funds wherewith to pay the expenses of such examination and treatment; the Teacher will send a Failure Notice (with such written statement if any) to the Principal or County Superintendent, recording same on the pupil's Teacher's Record Card.

The Principal or County Superintendent will record the Failure Notice on Pupil's Record Card and forward the Notice to the State Bureau of Child and Animal Protection, State House, Denver.

If a written statement of inability to pay accompanies a Failure Notice, the Principal or County Superintendent will at once "cause such examination and treatment to be made by the County Physician of the District wherein said child resides;" who if unable to treat such child shall forthwith report such fact to the County Commissioners with his recommendation. If satisfactory results are not had within a reasonable time, the Failure Notice, written statement of inability to pay, statement of reference to County Physician, etc., with other information germane to the case, is to be forwarded by the Principal or County Superintendent to the State Bureau of Child and Animal Protection.

What constitutes a "reasonable time" will be left to the judgment of the Teacher, under the advice and direction of the Principal or County Super-

intendent. If, after taking all the circumstances into consideration, doubt exists, refer the matter to the Bureau of Child and Animal Protection, with full particulars.

Whatever unpleasant or difficult duty may arise in the enforcement of the law for the examination and care of School Children, is laid by the law, not upon the Teacher, the Principal, the County Superintendent or the State Superintendent of Public Instruction, but upon the State Bureau of Child and Animal Protection.

Whenever the State Bureau of C. and A. P. receives a Failure Notice it will at once send its own notice to the Parent or Guardian requesting compliance with the law, and will, at the same time notify the Teacher of that action.

In most cases a notice from the Bureau will be sufficient to induce prompt obedience to the law. If, however, they still "fail, refuse or neglect," the Teacher will send a second Failure Notice, marked "No. 2," to the Principal or County Superintendent, who will forward it to the State Bureau of C. and A. P. at the State House, Denver. The date of the second notice is to be recorded also upon the Record Cards.

When the Bureau of C. and A. P. receives a Failure Notice accompanied by a written statement of inability to pay, etc., it will investigate and assist.

When the Bureau receives a second Failure Notice it will send an officer who will first consult with the Teacher, if possible with the Principal or County Superintendent, and acting under the direction of the Bureau will take charge of the case.

In most communities there is at least one local volunteer officer of the Bureau of Child and Animal Protection, fully empowered to act, and to whom the Teacher might be disposed to report cases, unless otherwise instructed. But in order to obtain accurate records and for other obvious reasons, Teachers are instructed to report all cases in accordance with the directions herein prescribed.

Teachers will record the results of the law enforcement by the State Bureau of C. and A. P. upon the pupil's Record Card.

The Teachers will fill out the Teacher's Summary blanks and mail to the County Superintendent at the end of the fall term and at the end of the school year.

The County Superintendents will fill out the County Superintendent's Summary blanks and mail to the State Superintendent at the end of the fall term and at the end of the school year.

Record Card Books and all other supplies for the execution of the provisions of the state "For the Examination and Care of School Children," or any part of them are to be sent upon her demand to the State Superintendent of Public Instruction.

Teacher should cross out words not needed and fill in blanks when occasion demands. All unused blanks should be returned to County Superintendent's office.

INSTRUCTIONS

ON

SIGHT, HEARING, AND BREATHING TESTS

In Accordance with Chapter 203, Pages 490-491, Sections 1, 2, and 3, Session Laws of 1909.

To Superintendents, Principals and Teachers:

The examination should be made by the teacher under whose immediate observation the child is to be, and under the direction of the Principal, or where there is no Principal, of the County Superintendent.

It is to be made during the first month's attendance of the child during each school year.

Every child must be examined.

The examination must be made privately and singly.

The record blanks must be filled out with the data obtained, and kept on file. The duplicate is to be sent to the County Superintendent at the end of each school term and upon request of the State Superintendent.

CHART No. I.

DISTANCE VISION CHART—LETTERS.

Sight—

Children already wearing glasses should be tested with such glasses properly adjusted; *i. e.*, frames straight, lenses on the same level and not touching the eyelashes. The head must be held straight, not tilted, and the eyes must look through the centers of the lenses.

The vision Chart must be kept in this envelope when not in use, as familiarity with it leads to an acquaintance with its letters. When it becomes soiled and worn, apply for a new one. Do not cover it with glass.

Place the Vision Chart on the wall in good light, side light preferred, and on a level with the child's head.

Place the child at a distance of twenty feet from the chart, directly facing it.

Examine each eye separately. Hold a card in front of and close to one eye, while the other eye is being tested.

Press the card against the nose, but not against the covered eye, as pressure on the eye will induce an incorrect result.

Have the pupil begin at the top of the chart and read aloud down as far as he can; first with the right eye from right to left and then with the left eye from left to right.

The line marked 20 should be seen and read at a distance of twenty feet if the child has normal vision.

To Record the Acuteness of Eyesight:

The number opposite each line of the Vision Chart shows the distance in feet at which those letters should be read by a normal eye. If the eye reads the letters (or with a mistake of only one or two letters) on the line marked 20, the vision is to be noted as 20/20, or normal; if the smallest letters which can be read are on the 30-foot line the vision will be noted as 20/30 (if vision is 20/30, parent need not be notified, if child is otherwise in good health); if on the 40-foot line, as 20/40; and so on.

If the child cannot see the letters on the 200-foot line, have him approach slowly until he can see them. If 15 feet is the greatest distance at which he can read them, the record will be 15/200; if 10 feet, 10/200; and so on.

To prevent memorizing, one letter at a time may be shown, and in irregular order, by covering the others with a piece of pasteboard having a hole cut in it, large enough to expose one letter.

CHART No. II.

DISTANCE ILLITERATE VISION CHART—FIGURES.

Use this chart in place of the "Distance Vision Chart—Letters" for children who do not know the letters, and in exactly the same way as directed for Chart No. I.

CHART No. III.

ASTIGMATISM CHART.

Test for Astigmatism:

Use the Astigmatism Chart in the same way at the same distance. If all of the lines are seen as equally dark and heavy, the child has no apparent astigmatism.

If one or more of the lines are seen to be blacker and heavier than the others, the child has apparent astigmatism, and the record should show which line is the blackest by its number on the chart.

Whenever it is learned that the child has less than 20/20 vision in either eye, or can see unusually far; that the lines on the astigmatism chart are not seen to be of even blackness; that the focusing power is markedly poor; that the child habitually tilts the head; that the eyes or eyelids are habitually red or inflamed, or sties have existed; that the eyes are crossed or have a strained appearance; that headaches of any kind, or pain in eyes or head, follow use of the eyes in reading, music-reading, sewing, or other near work with the eyes; that train sick headaches or morning headaches in the back of the head are frequent; or that the letters blur or run together when reading; the teacher will refer the case to the Principal or County Superintendent, who will send a notice to the parent or guardian of the child, that the child's eyes need medical attention, as the law requires. Effectual medical attention, with properly fitted and properly worn glasses, will cure most of these conditions.

HEARING.

Ears:

All children should be examined. Children should be examined privately and singly.

Examine the ears separately and together.

Ascertain whether the child has earache, has pus or a foul odor proceeding from either ear; suffers from frequent "colds in the head;" is subject to a constant catarrhal discharge from the nose or throat; or has noises in the ear.

Seat the child, with both eyes closed, facing you, near one end of a *quiet* room with the windows *closed*, and begin the tests of the hearing at a measured distance of twenty-five feet. The test is to be made by having the pupil close one ear tightly with his finger, while you observe the ability of the child to repeat your moderate whispers, with equal emphasis, of numbers between twenty-one and ninety-nine, inclusive—avoiding numbers with ciphers. Avoid having a wall behind you to act as a sounding board.

Record the distance at which the child correctly repeats a series of three numbers, which gives his hearing distance for that ear, thus:

If he repeats the numbers correctly at twenty-five feet, his hearing is 25/25, or normal; if the child only repeats the numbers correctly at twenty feet, his hearing is 20/25; and so on.

Further tests for ears, thus found defective, can be made by observing the greatest distance at which each ear can hear the tick of an ordinary watch. The normal distance is at least three feet.

When the hearing of either ear is found to be defective, the teacher will refer the case to the Principal or the County Superintendent, who will at once notify the parent or guardian of the child, that the child's ears need medical attention, as the law requires.

BREATHING.

Ascertain whether the child is a constant or frequent mouth-breather; has frequent attacks of tonsilitis or sore throat; has a flat or depressed chest, occluded nostrils or difficulty in breathing on exertion.

To ascertain if the nostrils are occluded, have the child press his fingers against one side of his nose and breathe forcibly through the other—note whether one side or the other is stopped up.

If any of these conditions exist, or are of frequent recurrence, the teacher will refer the case to the Principal or County Superintendent, who will notify the parents or guardian of the child, as the law requires.

COLORADO PUBLIC SCHOOLS. RECORD CARD.

Date.....

TEACHER'S TESTS OF SIGHT, HEARING, BREATHING, AND MENTAL, MORAL AND
PHYSICAL DEFECTIVENESS.

City or Town.....County.....School.....

Principal's Name.....Teacher's Name.....

Superintendent's Name.....

Pupil's Name.....

Age.....Sex.....Nationality.....

Parent's or Guardian's Name.....Address.....

From 4 to 11 underline in ink the points that apply to this pupil.

1. SIGHT
Glasses used—Yes, No.....
2. HEARING
3. BREATHING
4. MENTAL ACTIVITY (Good.....Average.....Slow.....)
5. MENTAL DEFECTIVENESS.....1. Inattentive...2. Backward...
3. Imbecile.....
6. FREQUENT ABSENCES.....Cause.....
7. MORAL DEFECTIVENESS.....Vicious personal habits.....
Moral delinquencies.....
8. PHYSICAL ACTIVITY (Excessive.....Average.....Poor.....)
9. POSTURE.....10. VACCINATION—Yes, No.....
11. PHYSICAL DEFECTIVENESS—Under- or over-development, uncleanness,
twitchings, limping, deformity, head tilting, offensive breath, skin
eruptions, frequent colds, hoarseness, cough, nasal voice, pain in
head, hip or knee, headaches, backaches, signs of fever, signs of
contagious diseases, pallor, poor circulation, teeth (crooked, promi-
nent, decayed, dirty), frequent urination, enlarged glands, stutter-
ing.

Indicate marked Mental, Moral or Physical Defects.

DISPOSITION OF THIS CASE.....

(a) Parent or Guardian notified.....Date.....

(b) Examination instituted.....Date.....

(c) Result.....Report of Physician returned.

(d) State Bureau of C. and A. P. notified.....

(e) Remarks.....

These "Record Cards" on sheets, in pairs, are made up in pads, a carbon sheet being used between each pair.

The first of each pair bears the following footnote:

This sheet is to be sent by the Teacher to the Principal, or where there is no Principal, to the County Superintendent.

The second, being the carbon duplicate, has the following footnote:

Teacher's Stub—Retain for Reference.

PRINCIPAL'S OR COUNTY SUPERINTENDENT'S STUB.

To this stub attach for permanent record, when received, the Duplicate Record Card of the Teacher's Test of Sight, Hearing, Breathing and Mental, Moral and Physical Defectiveness, from which make up the reports to the Superintendent of Public Instruction, to the State Board of Child and Animal Protection, and the notification letter to parent or guardian. Sections 5873a and 5995a, School Laws of the State of Colorado, 1909.

STATE OF COLORADO.

NOTICE TO PARENT OR GUARDIAN

THIS NOTICE DOES NOT EXCLUDE THE PUPIL FROM SCHOOL.

THIS NOTICE EXCLUDES THE PUPIL FROM SCHOOL FOR..... WEEKS.

School..... Town..... County.....
..... 19.....

Mr.....

Your child,, has been examined according to Sections 5873a and 5995a, School Laws, '09, and it is found that.....
*sight, hearing, breathing, seem to be defective, and we advise that the child be taken to a competent physician for examination and treatment.

If this notice with a satisfactory report from the physician employed is not returned to the child's teacher within a reasonable time, it will be considered as failure, refusal or neglect to comply with the law, which will necessitate report of the same to the State Bureau of Child and Animal Protection.

In case of contagious disease, the pupil will be excluded from school in accordance with the rules of the State and local Boards of Health.

.....
Principal.

.....
Co. Superintendent.

Date of Notification of Parent or Guardian.....

Examination Instituted.....

Treatment Begun.....

Result to Child.....

Date of Notification of State Bureau of Child and Animal Protection.....

Remarks: on further course of case.....

REPORT OF PHYSICIAN.

Town..... County..... Date..... 19.....

.....
Teacher.

*Cross off words not needed.

From the Biennial Report of the State Superintendent of Public Instruction, 1909-1910, Mrs. Katherine M. Cook.

Physical Examination:

Among several worthy laws concerning schools, enacted by the Seventeenth General Assembly, no one was of greater importance for the protection of children than that concerning the physical examination of children.

While the returns are incomplete and not wholly accurate, owing to unfamiliarity of teachers with the law and its provisions in this, the first year of its existence, they are sufficiently complete and reliable to give a fair idea of its importance.

The report is tabulated by counties, and will be found among statistics at end of this volume. Out of the sixty counties in the State, Dolores, Garfield, Kiowa, Larimer, Park and Washington failed to make any return. The Law was not complied with by the superintendents, principals and teachers of these counties, and the children in their schools are not included in the totals.

In the remaining fifty-four counties 108,798 children are enrolled. Of this number 92,427 were examined, with the result that 41,546 were found defective physically, mentally or morally to a degree sufficient to warrant reporting their condition to their parents, in accordance with the terms of the law.

Surprising as this result is, and certain as it is to be received with incredulity by all who have given the matter little or no attention, it is still short of the percentage of defectives found elsewhere. It must be remembered that this examination is pretty thorough and searching, and covers defectiveness of any kind, which in many cases might go unnoticed for years, even by the parents of the children. This is especially true of the sight, hearing and breathing tests. The law provides that especial attention be paid to the eyes ears, nose, throat, teeth and spine. If defectiveness were looked for in no other organs, and if mental and moral defectiveness were left out altogether, the number of children found defective would very nearly equal the total found. In fact the returns show that sight, hearing and breathing alone would account for nearly all of them. The number of adults who have perfect sight, perfect hearing, and whose air passages are in normal condition is very small, indeed; and while the proportionate number of children normal in these respects is higher, it is much lower than most people suppose.

The returns from Colorado show 45 per cent. of defectiveness in the children examined. In Chicago, out of 123,897 children examined, 51 per cent. were found defective; in Kansas City 56 per cent. were found defective.

Out of the 41,546 children found defective in Colorado, defects of sight existed in 26,978, hearing in 6,155, breathing in 8,045, and other unclassified defects, 21,825. There were 3,071 mental defectives and 746 moral defectives.

In Chicago 32.3 per cent. had defective teeth, 20 per cent. enlarged tonsils and 15.9 per cent. defective vision. In Colorado 29.1 per cent. had defective

vision, a difference which our brilliant sunshine and frequent dust storms may perhaps account for in part.

In Colorado 6.6 per cent. had defective hearing and 8.8 defective breathing.

It was found in one school in Denver, the only one in which such a record was kept, that the teachers' examination made under the directions from the Superintendent of Public Instruction, was confirmed by the physician's diagnosis in ninety-eight per cent. of the cases discovered by teachers and reported to the parents for medical examination. If a like degree of accuracy or anything approaching it was reached in the rest of the schools hardly anything better can be asked.

Without going further into an analysis or comparison of the results obtained than to say that they show for the first year a value and importance not merely justifying the law, but fixing its place as a permanent part of our school law not less in importance than the instruction for which our schools have heretofore existed, it may be said that Colorado is far in the lead of any other state or country in the world. England is the most progressive foreign country in this respect, yet she ranks below Massachusetts, and the superiority of the Colorado law over that of Massachusetts is so great as to be practically out of comparison.

Out of the 41,546 cases of defectiveness reported to the State Superintendent of Public Instruction as having been discovered, and presumably reported to the parents of the children, 221 cases were reported by teachers to the State Bureau of Child and Animal Protection for failure of parents to have the medical examination indicated by the teachers' examination made. Whether this was the total number of cases which should have been reported we have no means of knowing. In the absence of further information it may be assumed that it does not depart far from the total which should have been referred.

With one exception the parents in all these cases were induced by letter or by the visit of an officer to do whatever the children's condition required. In the one case where it was necessary to bring the parents into court the child's throat was nearly closed by enlarged tonsils and his health seriously affected. At the trial the father was sentenced to thirty days' imprisonment.

Owing to the failure of some superintendents, principals and teachers to comply with the law and the reluctance of others to do so the instructions of the State Superintendent of Public Instruction this year contain the following paragraphs:

"The requirements of the law providing for the examination and care of children in the public schools are mandatory upon teachers, principals and county superintendents.

"In all cases where teachers, principals and county superintendents fail, neglect or refuse to comply with the terms of the law it will be the duty of the State Bureau of Child and Animal Protection to enforce against them the provisions of the following sections of the law for the protection of children:

" 'It shall be unlawful for any person having the care or custody of any child wilfully to cause or permit the life of such child to be endangered, or the health of such child to be injured, or wilfully to cause or permit such child to be placed in such a situation that its life or health may be endangered * * * or in any other manner injure such child.

" 'Any person who shall be convicted of violating any of the provisions of the preceding section of this act shall be fined not exceeding one hundred dollars, or be imprisoned in the county jail not exceeding three months, or both, in the discretion of the court; and upon conviction for a second or any subsequent offense shall be fined not exceeding two hundred dollars, or be imprisoned in the county jail not exceeding six months.' "

A quantity of informative circulars, one on the care of the teeth, prepared by the Denver Dental Association, and one on the care of the eyes, ears, nose and throat, prepared by the Humane Education Society, Denver, were sent to the county superintendent of schools, accompanied by the following letter:

STATE OF COLORADO
DEPARTMENT OF PUBLIC INSTRUCTION.
DENVER.

February 14, 1910.

To the County Superintendent of Schools:

I am sending some circulars on the physical care of children, prepared by the Humane Education Society and Denver Dental Association. They are for general distribution. It is hoped, by those who have issued them, that they will prove of some assistance in the enforcement of the new law on the physical examination and care of children in our public schools.

Respectfully,

KATHERINE M. COOK.

The circulars mentioned have, also, been incorporated in the State course of study.

While we were somewhat lenient in the enforcement of this law, during the past year, because of its newness and the fact that parents and teachers were both unfamiliar with its provisions, I believe it should hereafter be rigidly enforced, and I feel the utmost confidence in the ultimate good to be accomplished thereby.

OFFICE OF THE STATE SUPERINTENDENT OF PUBLIC INSTRUCTION,
DENVER, COLORADO.

CARE OF THE TEETH.

Teeth that Are Well Cared For Are Beautiful as Well as Useful.—Their chief

use is to prepare the food for the stomach—to grind the food and mix it with the saliva. Food that is not thoroughly chewed causes indigestion and constipation.

Teeth Should Last to the End of Life.—If they do not it is due to decay or loosening.

Decay is caused by acids, formed from bits of food left after eating, along the edge of the gums, between the teeth, and in the crevices of the grinding surfaces.

Loosening of the Teeth is Caused by Diseased Gums.—Tartar is the chief cause of diseased gums. Swollen and bleeding gums are diseased gums. The way to prevent decay and loosening of the teeth is to keep them clean. The general health will be better if the teeth are kept in good condition, so that the food can be thoroughly chewed.

If Children Are Taught to Chew Their Food Thoroughly Their Teeth Will Grow Strong and Healthy.—Teeth can best be kept clean by scrubbing with a fairly stiff brush, with bristles well apart, to reach between the teeth, and some good powder or paste. Scrub all sides of the teeth, and in all directions, for at least two minutes, night and morning.

Irregularities of the teeth should receive careful treatment, especially those which make it impossible to close the teeth properly, thus leading to poor digestion and mouth breathing.

The First Permanent Molars Are the Most Important Teeth in the Mouth.—They come at about the sixth year, and are located right back of the temporary or “baby” teeth, and are often neglected because they are mistaken for temporary teeth.

The Temporary Teeth Should Last until the Permanent Ones Come In.—Any that decay before that time should be filled. This is necessary to the good health of the child. As good care should be taken of the temporary teeth as of the permanent ones. Too early extraction of the temporary teeth is a cause of deformities of the mouth.

A Dentist Should Carefully Examine the Teeth at Least Twice a Year.—A bad condition of the throat, the nose and the ears is made worse by decayed teeth. They add to the chances of catching infectious diseases. Well cared for teeth and a clean mouth help prevent *Tuberculosis*.

CLEANLINESS IS THE BEST GUARD AGAINST DISEASE.

PREPARED BY THE DENVER DENTAL ASSOCIATION.

EARS, NOSE AND THROAT.

The Sense of Hearing is Very Valuable to Every One.—Although each person has two ears well protected in dense bone, they are readily reached by diseases that attack the lining membrane of the nose and throat, such as colds, la grippe, measles, scarlet fever and diphtheria.

The ears are connected with the throat by two gristle-like tubes. It is through these tubes that air is forced into the middle ear cavities during the act of swallowing. For good hearing there must be air in the middle ears to balance the air pressure from without.

There is a pair of glands, called tonsils, one on either side of the root of the tongue, and also naturally (normally) a small tonsil-like mass called adenoids, in the upper part of the throat, close to the tubes leading to the ears.

When either the tonsils or the adenoids become too large, they interfere with the air entering the tubes to the ears and with the circulation of the blood to and from the ears. As a result the hearing becomes dull, especially when the child has a "cold." Repeated "colds" bring about lasting dulness of the sense of hearing.

Children with Earaches Almost Always Have Adenoid Growths.—Earaches should have prompt and proper care for they may result in deafness or in serious disease of the bone in which the middle ear is located.

"Running Ears" are Diseased Ears.—If neglected they result in damaged hearing and are a source of danger to life. All such ears should be kept clean and have proper treatment.

Nasal breathing is not only necessary for the preservation of hearing, but for the general health. It is known that even in dogs when nose breathing becomes impossible the hair falls out, the skin grows wrinkled and asthma sets in. And the same thing happens to the puppies horn when the mother dog is so affected.

Bony deformities and other growths inside of the nose may also prevent nose breathing and, like tonsils and adenoids, by causing mouth breathing, give rise to deformities of the upper jaw, irregular teeth and to a number of nervous troubles and diseases, such as St. Vitus' dance, night terrors, headaches, restlessness, night sweats, mental dulness, backwardness in school, asthma, rheumatism and tubercular glands of the neck.

Mouth breathers are more liable to contagious diseases and to diseases of the bronchial tubes and lungs, which are more apt to be fatal than in nose breathers.

Practically all of the causes of mouth breathing are curable, and the earlier they are removed the easier it is for the child to overcome the "mouth breathing habit."

(Information for parents. Prepared for the Humane Education Society, Denver, by Drs. Wm. C. Bane, Osee W. Hoffman and Mary E. Bates.)

EYES.

Eyes are necessary for self-protection and to make a living, yet they are the least cared for and the most abused part of the body.

Eye-strain is an excessive or abnormal effort of an eye or a pair of eyes to maintain perfect vision (sight).

Eye-strain is due chiefly to some defect in the shape of the eyeball or to weakness of the muscles of the eyes. It may also be due to or made worse by over-use or unwise use of the eyes.

A perfect eye can be strained by over or unwise use just as a perfect arm or leg can be. There are few perfect eyes.

The Imperfect Eyes Are on a Strain Whenever Open.—They are more easily harmed by over or unwise use. This means a leakage of nerve force in the eyes and in other parts of the body. Such eyes may seem to be perfect and yet by using up more nerve force than their share, in order to see, may lead to diseases in other parts of the body thus deprived of nerve force.

Slight imperfections of the eyeballs causing small amounts of eye-strain often do more harm by continuously undermining the general health than do the greater ones that are more readily felt and hence more quickly relieved.

Reading while lying down, and by poor light, night or day, is harmful to the eyes.

SOME BAD EFFECTS OF EYE-STRAIN.

Headache and neuralgia, particularly over the brows and in the back of the head and neck.

Inflammations: redness, scales, crusts and sties of the eyelids and ulcers of the eyeball.

Cross-eyes: the eye that crosses usually loses vision from non-use and may become practically useless if not corrected.

"Reflex" Nervous Conditions: epileptic spasms, convulsions, "nervousness," restlessness at night, palpitation of the heart, St. Vitus' dance, nausea, vomiting, indigestion, a "run down" and even more serious physical conditions are common.

Watering of the eyes and blurring, when reading, sewing or doing other near and fine work.

Backwardness in Mental Growth, and Truancy.—Eye-strain produces an irritation in the brain expressed by a restless desire to run away from school (and near work) and then they stay away for fear of failure in class.

Tilting of the Head.—When constant, this is often due to an effort to straighten out crooked vision and may lead to spinal curvature with its bad effects.

Holding the work close to the eyes shows eye-strain.

When these conditions are caused by defects in the eyeballs, glasses are necessary and they cannot be permanently cured without glasses.

Children's eyes should always be tested with pupils dilated by atropine (belladonna).

Spectacles are better than nose glasses.

It is as necessary to keep the glasses on straight as it is to have a proper fit. If glasses are not comfortable or do not fit they will be taken off and not worn. Because a child refuses to wear the glasses it is no sign that he does not need properly-fitting spectacles. (Prepared for the Humane Education Society by Dr. Wm. A. Sedwick and Dr. Mary E. Bates.)

The following leaflet was prepared for use in the Denver Public Schools by one of the Denver School Inspectors, Dr. Rose Kidd Beere, and in connection with it the notice following thereafter is used:

DENVER PUBLIC SCHOOLS.

School District Number One in the City and County of Denver, Colorado.

NOTICE TO PARENTS.

We ask your help in the effort we are making toward the education of the children in the care of the teeth.

Much bad health comes from decayed, unclean teeth.

Your Part:

To see that your child brushes his teeth after every meal.

If he has decayed teeth, take him to a dentist.

Our part:

To give proper instruction on the care of the teeth.

To provide tooth brushes for 7 cents.

Food left about the teeth decays and forms lactic acid which destroys the enamel.

Green stain, if not removed by a dentist, should be brushed persistently using precipitated chalk, occasionally powdered pumice stone.

The temporary (baby) teeth should be kept filled and in place until gradually pushed out by the coming second teeth, for if lost too early those taking their places are apt to come in crooked.

THE SIXTH YEAR MOLAR often begins to decay early. It is the sixth tooth from the middle line, on each side, above and below. Watch it and have it filled if it shows a spot of decay, for no tooth will ever come in its place if it is lost.

Teeth should be examined every six months.

DENVER PUBLIC SCHOOLS.

School District Number One in the City and County of Denver, Colorado.

To the Parent or Guardian:

An examination of your child indicates that the child's teeth need attention.

I suggest that a dentist be consulted.

The dentist who examines this pupil is requested to sign and date this

card and return it to the child, who will return it to the teacher. A subsequent report of the result of this treatment will be appreciated.

.....Principal.

I have this day examined the above named pupil and have begun treatment.

Date.....

.....

D. D. S.

Any law which adds to the requirements and duties of the teacher may meet with her opposition if she be ignorant of its need, its objects and its benefits; if she be blind to its absolute and relative importance and, indifferent to her true mission and opportunity, determined to earn her salary the easiest way.

When schooling ceases to be the present senseless routine of imparting and receiving a hodge podge of miscellaneous information and becomes a truly educative process the physical welfare of the pupil will be recognized as the prerequisite of successful mental, moral and spiritual development.

The demand which the "Bates Law" for the Examination and Care of Public School Children has created for a better understanding of mental, moral and physical defectiveness and their inter-relations has shown the need for the special instruction of teachers therein as well as their special training in the methods of examination and the enforcement of the law.

The State Bureau of Child and Animal Protection has kept Dr. W. R. Callicotte, Professor of Moral and Humane Education, in the field throughout the state for that purpose where such instruction has not been furnished by other authority, and the State Normal School at Greeley has added to its curriculum such a course which will be given by Dr. Callicotte. Proficiency in performance of her part in the law will doubtless soon become mandatory before a would-be teacher can obtain her certificate.

In Denver, during the present school year, the Denver School Board has employed two "School Inspectors" who have supplemented the work of the teachers where the teacher found defectiveness. This has operated to the better protection of parents from needless recourse to a physician and a better differentiation

and comprehension of defectiveness, as well as a training of the teachers in their duties under the law. The discovery by Dr. Beere of scores of cases of trachoma in the public school maintained by Denver in the State Home for Dependent and Neglected Children, was one of the benefits of this additional medical inspection, as desirable in its way as the release of the teacher from her responsibility by a purely medical inspection would be undesirable.

As a state proposition paid medical inspection by physicians is at present a financial impossibility. None of the many valid objections to possible political incompetents as such inspectors apply to the Colorado method.

Here the benefits are not limited to the examination made at the beginning of the school year, for ours is a system of continuous observation, including both prophylaxis and cure.

The foolish and vicious trend of the times promoted by the Juvenile Courts and other influences, to relieve parents of their obligations and responsibilities to their children, and to the community for the welfare of their children, by assuming such obligations and responsibilities or placing them elsewhere, and the equally foolish and pernicious doctrine that, *per se*, "parents know what is best for their own children" and will therefore, do what is best for them, find no support in the "Bates law."

The law was designed to fit conditions in Colorado; to utilize the public school system in a proper and available way; to obtain at a minimum cost a practically continuous observation and investigation of the health and needs of school children; to hold parents responsible for the relief and cure of defectiveness in their children; to permit them freedom of choice of a "competent physician or surgeon;" to furnish information to parents of value to them, their children and the community; to assist them wherever necessary for the best good of the children and to provide a legal way to compel delinquent parents to meet their legal parental obligations and responsibilities.

The following letter presents the subject from the standpoint of the law's enforcement by the Bureau of Child and Animal Protection.

THE STATE BUREAU OF CHILD AND ANIMAL PROTECTION.

State Capitol, Denver.

DENVER, COLO., March 17, 1912.

Dr. Mary Elizabeth Bates,
520 Majestic Bld'g, Denver.

My dear Doctor:

There are no general statistics available on the operation of the law requiring the physical examination of school children later than those furnished by the State Superintendent of Public Instruction in her biennial report for 1909-1910. They covered the first year of the law's enforcement, it having been passed in the spring of 1909. The next biennial report of that office will appear in January, 1913, and will be for the years 1911-1912.

However, the statistics in the report for 1909-1910 will answer the purpose of determining the value of the law and its practical working. We have no reason to expect any considerable changes in the next report except, probably, a more complete and intelligent observance of the law by teachers. There is no question of its being a permanent and most valuable addition to school legislation and of its broadening from year to year the narrow view heretofore held of what the school and the teacher ought to do for the child.

Not so many cases of neglect or refusal by the parents to act upon the teacher's notice were referred to this office the second year as the first. As might be expected, few such cases came from places which furnished many the first year, and *vice versa*. We have no reason to think this is due to lax observance of the law but rather to general acquiescence and compliance with it. Some towns where teachers and principals are known to be thorough-going and alert report no difficulty in any case.

We have thus far had only three cases where our officers found it necessary to bring parents into court under the general law against wrongs to children for refusing to have examination made and treatment begun after notice from the teacher. In two of these cases the parents were convicted and given, each, a thirty-day sentence in jail, which they escaped serving by complying promptly with the law. The third case has not yet been tried but we expect, without doubt, to convict.

It should be said that this Bureau makes all reasonable effort to secure compliance of parents with the law without court action. When teachers notify us of the failure of parents to respond to their notices of apparent defective conditions in their children we, in our turn, notify the parents that they must comply with the law within ten days or give some good reason for not doing so. At the same time we send a notice to the teacher and ask to be informed about all who do not act upon our notice within the ten days. At the expiration of ten days if the teacher has not notified us of proper action by the parents we send our officer to the delinquents. In all the cases we have thus far had, now probably approaching a thousand, we have se-

cured compliance with the law in all but the three cases already referred to without going into court.

After an experience of nearly three years we can suggest no necessary amendments to the law under the conditions existing in this state.

In our opinion the law in usefulness and value occupies the front rank, sharing it with the general law forbidding and punishing wrongs of any kind to children, the compulsory education law and an adequate law requiring moral and humane education,these four.

Sincerely, "

E. K. WHITEHEAD, *Secretary.*

The object of this law was to provide a way by which all the public school children of Colorado might be under continuous, intelligent and interested observation with the view of aiding them to achieve the highest possible degree of physical, mental and moral health, and to provide adequate means for enforcing such attention and care by parents as might be necessary therefor.

The experience of the three school years that have elapsed since the law was passed indicates that this object is being attained.

XXIII.

THE IMPORTANCE OF EARLY RECOGNITION OF SURGICAL AFFECTIONS IN CHILDREN.

By CHARLES D. LOCKWOOD, M.D., Pasadena, Cal.

No more important step has been taken in the progress of our public schools than that in the direction of improved health through school inspection. It will doubtless take several generations to overcome entirely the opposition of the ignorant and the fanatical in matters of health and hygiene. So strong is the fetish of personal rights, and so arrogant the assumption of individual freedom on the part of the average American citizen, that he is slow to recognize the right of the city or state to exercise control over such personal and private matters as those concerning his health. The hope of the future lies in teaching in a graphic manner to the school children of to-day the fundamental facts of biology, physiology, bacteriology and hygiene.

While school inspection has done much toward discovering the causes of backwardness and underdevelopment in children, there still remains much to be done. Parents and teachers of average intelligence are ready to acknowledge the important bearing of eye, ear, nose and throat troubles upon the intellectual processes of children, and they even recognize the symptoms pointing to these affections. But there is not the same readiness to admit the importance of certain other less obvious medical difficulties and not so easily recognized surgical conditions. It is of the latter that I wish chiefly to speak.

There are certain glaring defects such as cleft palate, hare lip and club foot which cannot escape detection even by the most casual observer, and yet they are allowed to go uncorrected until the child's life is irreparably damaged by them. These congenital defects although rare, when compared to the less important throat diseases referred to above, are yet so common that there is scarcely a community however small it be that does not harbor at least one child who is afflicted with one of these deformities. Children born with hare lip are commonly thought to

be mentally defective and are often derided by their playmates and made the butt of fun and cruel jokes. As a matter of fact, these children are almost invariably bright, normal children so far as their nervous development and mental faculties are concerned, and if their deformities are remedied by timely surgical aid, they become normal children and grow into useful citizens. However, if the dreadful incubus of deformity is not early removed, they become most pitiable objects, condemned to unhappy lives. The objects of pity, ridicule or disgust, they soon become self-conscious, shun all associations and drift into the army of incompetents. There should be some provision of the state whereby such children should receive timely aid. The children of those who are too poor or too ignorant to seek aid should be furnished competent surgical attention per force, and free of cost if circumstances justify it. The rich, no matter how sceptical they may be of the efficacy of surgery, will rarely hesitate long in seeking aid. The same attitude should be assumed with reference to club-foot, congenital dislocation of the hips and other minor physical defects amenable to surgical treatment. In no other way is it possible to conserve the lives of such children and to give them an equal chance with their fellows.

There is another large class of surgical affections not so readily recognized and yet of almost equal importance as regards the efficiency of the child. Among these may be mentioned the following: (1) Glandular affections. These are often amenable to medical treatment, but in a good proportion of cases there is some chronic infection, such as tuberculosis or infected tonsils which only surgery can relieve.

(2) Tuberculosis of bones and joints. There is no pathologic condition in children that is so often overlooked and in which early treatment means so much as tuberculosis of the joints and bones. I am constantly seeing cases that have already passed the stage when judicious treatment might have saved months in bed, loss of function and mutilating operations. The most common of these affections are hip-joint disease and Potts' disease, or tubercular spondylitis. The early symptoms of these are so characteristic that no observant physician should overlook them.

The presence of muscular rigidity, a limp and night cries should always awaken suspicion. With a history of these symptoms, the diagnosis can easily be confirmed by examination.

(3) Chronic appendicitis. Many of the obscure digestive troubles in children, indeed I believe the majority of them, are dependent upon inflammatory conditions in the appendix. Owing to the relatively high position of the appendix vermiformis in children and its free mobility, the pain may be referred to any part of the upper abdomen, and muscular rigidity will not be so marked in the right iliac fossa region as in adults suffering from appendicitis. The existence of appendicitis in children is usually announced by a severe acute attack, accompanied by exquisite, sharply localized tenderness, high fever and a high leucocyte count. The association of appendicitis with tonsilitis should be constantly borne in mind. Many times the appendix would better have been removed than the tonsils.

(4) Phimosis and paraphimosis. No minor affection of children has a more important bearing upon the health and morals than these conditions in boys. A tight foreskin with its attendant irritation leads to incontinence of urine, hernia, masturbation and in young children to convulsions. The records of Juvenile Courts also bear testimony to the startling effect of genital irritation upon the moral conduct of boys. Circumcision is a simple, safe and certain remedy.

It is hardly to be hoped that these surgical conditions will come within the scope of school inspection. The antagonism of the public to thorough and complete physical examinations and the limited time and facilities of the school examiner will preclude the detection of any but the more obvious difficulties. The early recognition of these affections will fall upon the general practitioner, and it will be necessary both to teach parents the necessity of having their children examined for slight ailments, and for physicians to cultivate the habit of observing the children of the families whom they serve. It has been the purpose of this paper to simply point out the importance of early diagnosis in surgical conditions as a factor in the conservation of the health of children.

XXIV.

THE TEACHER'S RELATION TO HEALTH SUPERVISION IN SCHOOLS.

By ERNEST BRYANT HOAG, A.M., M.D., Department of Hygiene, University of California.

When medical inspection of schools was first introduced about seventeen years ago in New York, Boston, and Chicago, it included an examination for *transmissible diseases* only. After ten years of this sort of work it was found that while the detection and control of these diseases was most important, that a vastly more urgent phase of health work was being entirely overlooked. This is the physical examination of children for various defects which interfere with the pupil's health, happiness and progress, such as those of the eyes, ears, nose, throat, teeth, heart, lungs, and nervous system, and general disorders of nutrition. More recently we have come to realize that *mental* conditions must receive as careful consideration as those affecting the physical nature of the child, and accordingly school medical officers who recognize their full duty have been obliged to familiarize themselves with certain phases of psychology, psychiatry, general neurology, and other related branches, which in the past have received scant attention from any except specialists in the medical profession.

Beginning then with inspection for transmissible diseases only, the field of medical inspection in schools had gradually but steadily broadened until to-day a properly qualified officer for schools must of necessity be a trained specialist in his particular branch. The time has passed when *any* medical man can be considered good enough for the position of health officer in schools and particularly any medical man who is either too young, too old, or too inefficient to succeed in regularly established lines of medical practice.

But with the increasing demand for better qualified men in the schools, and with a rapidly broadening development of the work itself, there have also appeared certain factors and factions antagonistic to the success of health supervision of school chil-

dren. These must be reckoned with or the work is doomed to failure or at least to many serious set backs.

Among the most important of these elements unfavorable to the proper development of health supervision may be included the following:

1. Ignorance of the nature and scope of the work.
2. Prejudice.
3. Expense.

Within the first division (Ignorance) are naturally included many persons who have no adequate conception of what the existing physical conditions are among school children. This class can be dealt with only by slow patient attempts to inform them by means of popular education.

In the second group (Prejudice) are found individuals belonging to several sub-groups which might be classified as follows:

- (a) The Christian Scientists.
- (b) The League of Medical Freedom.

(c) The "Paternalistic," or those who regard any attempts to safeguard their children's health as a personal interference with parental rights.

Within these sub-divisions in the second group (Prejudice) are included many admirable individuals in almost every community who have strongly established organizations, and who are consequently in a position to do much injury to the cause of health work in schools.

Under the third group (Expense) many serious difficulties are encountered. In this connection it may be said that with the development of what is really a new specialty in medicine, accompanied by a demand for reasonable remuneration, medical inspection in schools has received another blow, for schools are very slow to realize that even high-priced inspection is a matter of economy in the end and it will take considerable time and organized effort to make this clear in most communities.

In the meantime, health supervision is just as urgent a matter as ever and some means must be devised to carry it forward.

Under the existing conditions the most natural method of secur-

ing proper physical attention to defective school children must of necessity *originate* through the efforts of the teacher herself.

Whether a school has medical inspection or not, the teacher after some elementary instruction can do very effective work. Where a medical officer is in general charge, he must necessarily depend to a large extent on the teacher's aid if he is to accomplish much. It is too much to expect one medical officer to properly supervise the physical conditions of six or seven thousand pupils or more, or a few medical men to care for fifteen to fifty thousand as is often if not usually the case. On the other hand, with the teachers as properly qualified assistants, one or a few medical officers may easily handle a very large number of children in a town or city.

As things stand to-day practically every city, town, or country district, whether medically inspected or not, finds itself in need of the assistance of the teacher in matters pertaining to school health.

How then may teachers become either (1) independent health supervisors, or (2) able assistants to school medical officers and nurses? The problem is rather an easy one to solve and the following plan is now offered as a reasonable solution:

(1) Every teacher before certification should be obliged to give evidence of practical elementary knowledge of the functions of the body.

(2) Every such teacher should be obliged to give evidence of practical knowledge of those ordinary physical defects of children in the schools, which interfere with school progress.

(3) Every Normal School and Teacher's College should provide adequate instruction in the lines indicated above. Very few of them now do so, although when questioned most of them answer in the affirmative, regarding certain traditional courses in Biology and Physiology as covering the requirement, a supposition which the facts prove almost entirely unwarranted.

(4) Teachers who are without experience in Child Hygiene but who are already certificated, should be instructed by properly qualified specialists in this subject.

(5) Physical educators must receive this special training in

addition to that which they ordinarily acquire in their courses, and with it their efforts will prove particularly valuable in this new sort of health supervision.

As a suggestion of what any intelligent and willing teacher may accomplish who has received the very elementary training in Child Hygiene indicated above, the following outline for a *non-medical* examination or Health Survey is proposed.

In making this Health Survey the teacher may take her own time. If a survey is completed in a room of the average number of twenty to forty pupils, in a month or six weeks, it will be quite satisfactory, and any teacher will be able to accomplish this without feeling that she is imposed upon. After a pupil's health survey is made a notice should be sent to the parent in those cases where physical difficulties *appear* to exist. This notice may be very general and non-committal in character and should always be signed by the *Principal* of the school. Such a notice has been successfully employed under my direction in the following form:

To the Parent of

The teacher of this child has reason to believe that he is suffering from physical defects serious enough to need attention. An examination by your family physician is therefore advised.

For further details you are invited to call at the office of the Principal at any time you may find it convenient.

Very Sincerely Yours,

.

Principal of School.

It is the writer's conviction that a Health Survey carried out in the manner suggested will result:

First, In overcoming most of the prejudice against physical examinations of school children.

Second, In educating the public in matters of Child Hygiene and Preventive Medicine.

Third, In largely solving the question of expense.

Fourth, In the discovery of more than 90 per cent. of the urgent cases of physical defects.

Fifth, In considerably decreasing the teacher's wear and tear.

Sixth, In considerably increasing the children's health, happiness and efficiency.

The significance of all of the answers obtained by use of the questions in the Health Survey may not at first be appreciated by a teacher, or other person without medical training, but experience and a little study will gradually make this matter plain.¹

HEALTH SURVEY OF PUPILS.

[To be made by the teacher at the beginning of the term.

It will be noted that the questions are so asked that the negative answers will indicate the defects discovered.]

A. GENERAL APPEARANCE.

	Yes.	No.
1. Is the child healthy appearing?.....		
2. Is the color good?.....		
3. Is he physically well developed?.....		
4. Is he free from apparent deformities?.....		
5. Has he a good standing posture?.....		
6. Has he a good sitting posture?.....		
7. Are the shoulders even?.....		
8. Does the child walk normally?.....		
9. Are the heels of the shoes worn evenly?.....		
10. Is the physiological age of the child apparently equal to that of his chronological age?.....		

B. MENTAL CONDITIONS.

1. Is the child normally advanced in school?.....	
2. Is he mentally alert?.....	
3. Does he answer ordinary questions intelligently?	
4. Does he play normally?.....	

¹ For purposes of handy reference the teacher should make use of a few well known books on Child Hygiene. Among these may be mentioned: Civics and Health (Allen). Children in Health and Disease (Forsyth). The Physical Nature of the Child (Rowe). The Health Index of Children (Hoag). Medical Inspection of Schools (Cornell). Functional Nervous Disorders of Children (Guthrie).

C. NERVOUS CONDITIONS.

Yes.

No.

1. Is the child good tempered?.....
2. Is he free from abnormal emotion?.....
3. Does he have good powers of muscular coördination?.....
4. Is the child free from spasmodic movements?....
5. Is he free from the nail biting habit?.....
6. Does he speak without stammering?.....
7. Is he free from pronounced peculiarities such as irritability, timidity, embarrassment, cruelty, moroseness, fits, general misbehavior, etc?..
8. Is he apparently free from bad sexual habits?..
9. Is he free from so-called "bladder trouble" (requests to "go out")?.....
10. Is he usually free from headache?.....

D. TEETH.

1. Are the teeth clean?.....
2. Are the teeth sound?.....
3. Are the six-year molars in good condition?.....
4. Has the child been to a dentist within six months?
5. Are the teeth regular?.....
6. Does the child use a tooth brush every day?....
7. Are the gums free from abscesses?.....
8. Are the gums healthy looking?.....
9. Are the upper teeth straight (not prominent)?...
10. Have decayed teeth been filled?.....

E. NOSE AND THROAT.

1. Does the child breathe with the mouth closed?..
2. Is he free from nasal discharge?.....
3. Is he free from "nasal voice"?.....
4. Has he a well developed face?.....
5. Has he a well developed chin?.....
6. Has he straight, even teeth?.....
7. Is the child mentally alert?.....
8. Is he usually free from sore throat?.....
9. Is the hard palate wide (not high and narrow)?
10. Is the hearing good?.....

F. EARS.

Yes.

No.

1. Does the child usually answer questions without first saying "what"?
2. Is he fairly attentive?
3. Is he fairly bright appearing (not stupid)?
4. Does he have a voice with good expression (not expressionless)?
5. Does he spell fairly well?
6. Does he read fairly well?
7. Is he free from earache?
8. Does he hear a watch tick as far as the average child?
9. Is he free from ear discharge?
10. Is he free from any peculiar postures which might indicate deafness?

G. EYES.

1. Are the child's eyes straight?
2. Is he free from chronic headache?
3. Does he do his work without fatigue?
4. Is he free from squinting or frowning?
5. Is the child free from postures which might indicate eye defects, such as leaning over too near the desk, holding the head on one side, etc.?
6. Are the eyes free from redness and discharge?
7. Are the eyelids healthy-looking?
8. Can the child read writing on the board from his seat?
9. Have the eyes been tested separately with the Snellen Test Type?

H. COMMUNICABLE DISEASES OF THE SKIN.

1. Is the head free from any signs of disease (lice, ringworm)?
2. Is the skin of the face, hands, wrists, forearms, chest free from red, somewhat circular patches (ringworm)?
3. Is the skin of the face, hands and forearms free from infected spots with crusts and pus (impetigo)?
4. Is the child free from red scratched lines and spots on the hands, wrists, forearms, chest and between the fingers (itch)?

I. ERUPTIVE CHILDREN'S DISEASES.

Is the child free from the following general early indications of contagious diseases?.....

1. Flushed face.....
2. Lassitude.....
3. Vomiting.....
4. Eruptions.....
5. Congested eyes.....
6. Discharging eyes.....
7. Nasal discharge.....
8. Persistent cough.....
9. Scratching.....
10. Sleepiness.....

Yes.

No.

When the above outline is properly filled out the teachers will be surprised with the information it develops on points often unsuspected. As a preliminary test before the arrival of the School Medical Officer or Nurse, it will furnish invaluable aid.

XXV.

THE SCHOOL NURSE.

By FRANK ALLPORT, M.D., Chicago.

The school nurse is an evolution from the visiting nurses' association and this branch of nursing, while it has only been in existence a few years, has amply proven its usefulness and indispensability. It occurred to those having such matters in charge, that as public schools were great gathering places for the young and consequently great foci of diseases, that it would be a good plan to appoint nurses who should have general care of the health of the scholars and assist the Medical School Inspectors in their work. The experiment was tried and it was immediately seen that a great need had been supplied, and the idea has extended and widened until school nurses are now employed in almost all large cities.

These school nurses, as a rule, were first supplied from the various visiting nurses' associations, but it soon became evident that it was unfair to place the financial burden on this association, and it was also felt that the school nurses were really doing municipal work, and that they should be paid by the municipality and be under its control. It therefore develops that the school nurses are now as a rule a portion of the health department in the various cities, and that their remuneration (meagre and insufficient as it usually is) is furnished by this branch of the city government which is the legitimate agency for its administration. The work might of course be carried on under a Board of Education as is done notably in Toronto and Colorado Springs, as the Board of Health in those cities did not, for certain local reasons, feel able to assume the responsibility. It is really a shame that these noble women, whose extensive, laborious and many-sided duties are performed with such zeal and faithfulness, and who accomplish so much good to mankind, should be so poorly paid for their services. As a rule the school nurses are under the direct superintendency of a head school nurse, who is, in her turn, under the control of the Health Department. Their work is

divided according to the various school districts, and it is, of course, desirable that each nurse shall have but few schools to care for, in order that individual necessities shall be relieved in the best manner possible. No nurse should have under her care more than 1,000 pupils, indeed, one nurse can hardly care for more than one school and do her work satisfactorily, and I greatly question whether even this is not too much labor to expect of any one woman.

This opinion can perhaps be better understood, if an effort is made to acquire some idea of the multitudinous duties of the average school nurse. In the first place she shall act as first assistant to the medical inspector, and shall always be in attendance when he makes his visits to the school. By observation and consultation with the teachers, she finds sick and ailing children and submits them to the inspector. The carrying out of the inspector's orders is placed in her hands, whether this is done at the school, home or hospital. Many cases of skin diseases, lice, filthiness, etc., are cared for at the school by the school nurse, under orders from the medical inspector, and in schools possessing bath tanks, etc., they are operated under the supervision of the school nurse. One of the principal functions of the school nurse is to see that the Doctor's orders are carried out. The doctor may diagnose and prescribe, but unless his advice is followed his work is useless. This important duty is performed by the school nurse. It must be remembered that many public school children are poor children, whose parents are either busy, negligent, impoverished, dissipated or ignorant. They probably have no money with which to purchase medicines, appliances, glasses, medical, surgical and hospital services, etc., and all these things the school nurse undertakes to supply by drawing upon the resources of charitable funds, charitable people, charitable hospitals and charitable doctors. These poor people are sometimes apparently devoid of energy, and have to be cared for with but little confidence in their intelligence. The school nurse then has to secure the medicine and see that it is properly administered. Cleanliness, bathing, properly prepared food, sanitation, ventilation, plumbing and warmth come under her supervision. She

takes children to doctor's offices, dispensaries, hospitals, etc., and sees that they get home again. She carries out the doctor's orders at home, such as giving medicines, syringing ears, using eye-drops, making surgical dressings, etc., she coöperates and works with the truant officer in keeping children in school. In short, through her assistance the doctor is able to prescribe or operate with the confident feeling that he is not working in vain, and that his directions will be followed as far as is humanly possible by the already over-worked school nurse, in coöperation with her equally praiseworthy but over-burdened sister, the visiting nurse of the district. Before these commendable institutions came into existence thousands of able operations were virtually thrown to the winds by poor post-operative attendance, and enormous stores of good medical advice nullified by neglect and improper living. The school and visiting nurse have become, then, the element which has transformed doubtful results into reasonably certain good results. This, of itself, is an amply sufficient excuse for her existence.

The school nurse not only comes into contact with the school child, but also naturally and inevitably mingles with the school child's family, and here she performs a most important function, not only to the child, but to the family and to the community as well. By calling upon the family to look after the welfare of the school child, she and the district visiting nurse, if necessary, will endeavor to educate the family to ideas of cleanliness, honesty, sobriety, industry, kindness, cooking, ventilation, infant welfare, etc., in all of which departments of proper living there is abundant opportunity for missionary work among the thickly populated tenement districts of our large cities. This is a department of charity which, unfortunately, will never be overdone, and the extent of its usefulness is only outlined by the amount of money that is eligible for the purpose. I believe there is no charity which furnishes such extensive results for the money subscribed as the visiting and school nurse, and no object for which people may so safely and blindly contribute financial support as the one under consideration; every dollar given helps to make individuals and communities better, healthier and happier.

The experiment is being employed in small towns of employing school nurses to act as medical inspectors, and so far the plan has given great satisfaction wherever it has been tried. Of course, in sizable cities, the function of the medical inspector should not be supplanted, but in small communities where there are only a few schools and only a very few doctors (who are, perhaps, jealous of each other), there seems to be no good reason why a school nurse, who devoted her entire time to the work, should not be able to render very satisfactory service. Of course, she cannot diagnose disease as well as a medical man, and this is really not necessary, as her function is not to treat the children medically or surgically, but to ascertain the existence of disease and defects and then refer such abnormal children to a doctor, after which the nurse can, if necessary, assist the doctor in the carrying out of his advice. The school nurse under these circumstances should never recommend any particular doctor in her small community; she is the servant of the *entire* town and is being paid by its public funds, to which all the doctors contribute. She should, therefore, treat all the medical men alike, as it is only by perfect fairness in such matters that the plan can possess any prospect of a permanent existence. Such school nurses should understand that they are not only employed to inspect the defects and diseases of the children and then advise the parents to take them to a doctor for treatment, but that they are also employed to do what seems necessary, to see that the doctor's orders are carried out, both in school and at home, and to do whatever home visiting is indicated among the poor and needy, and to do whatever she can for their condition and welfare. It will be seen that a school nurse who is expected to do such responsible and varied work must be a woman of age, tact and experience, and communities should see that they are well paid for their labors.

Another function which has been suggested for the school nurses in large cities, is to examine children for eye, ear, nose and throat diseases, instead of having such examinations made by teachers or doctors. It is the consensus of intelligent opinion that boards of health should have authority over such physical

conditions of children that menace the public health, or which involve acute illness, while boards of education shall supervise the inspection of children for physical defects, or diseases of a chronic nature, which do not menace the public health. With this idea in view, abnormal conditions of the eye, ear, nose and throat would be inspected under the supervision of boards of education, and is done by either teachers or doctors. Doctors are expensive, not reliable as to time, and usually produce professional jealousy and discord. Such examinations can best be accomplished by teachers under the system which I proposed years ago. By this method, the teacher, by asking nine questions, ascertains the existence of about 95 per cent. of all serious defects and diseases of the eye, ear, nose and throat. No medical education is necessary for the test, which does not consume more than 5 minutes for each student. In case a defect or disease is found the child is sent to a doctor of the parents' choosing. Each teacher has about forty pupils in her room and she could examine them all in a day. A day in each early Fall should be dedicated to this work, and by such subdivision of labor every school child in any city could be easily inspected in one day. The cost is practically nothing, and the teachers will all be abundantly repaid for this apparently extra work when their labors become ultimately lightened by the transformation of stupid children into bright children, when their defects or diseases are relieved by glasses, treatment, or operation.

It has been suggested that this work be done by a few school nurses who should go from school to school and inspect the scholars. There can be no possible objection to this plan, provided the board has money to spend for its accomplishment. In a city like Chicago, for instance, it would cost several thousand dollars if school nurses were employed to do the work, while it could be done sufficiently well by the teachers, for the mere cost of the printed matter. Teachers are perfectly competent to make the tests, and it is folly for them to claim it to be unjustified extra work. It is *not* extra work, it is *economy* of work. No individual's work in a school room will be ameliorated as much as the teacher's. This is a *fact*, which she ought to understand, *acknowledge* and *act* upon.

It will thus be seen that the duties of a school nurse are varied and arduous, and that although one day inevitably merges into another day, her work is never finished. School nurses should be mature in years, ripe in experience and possess great tact and patience and be in love with the work. If endowed with these qualities, she will find her profession to be one from which she derives the greatest satisfaction, but if not so endowed, she would better choose some other avenue of work.

7 W. MADISON STREET.

XXVI.

OPEN-AIR SCHOOLS.

By THOMAS WRAY GRAYSON, A.M., M.D., Pittsburgh.

To my mind, no conference on the "Conservation of School Children" would be complete without a consideration of open-air or fresh-air schools, for such schools will literally enable children "to have life and to have it more abundantly."

An open-air school is one in which the pupils are kept entirely in the open air, a curtained pavilion or a shed with many windows and doors being used to give to the children the protection necessary from rain, wind and sun, but wide open to the outdoor air on at least one or two sides even in the stormiest weather.

In 1904 the first "open-air recovery school" was started in Germany and now we have many such scattered all over Germany, France and England. In fact, many municipalities have taken up the movement with enthusiasm, and open-air schools now are as much the care of a city's government as public playgrounds, public baths, etc.

Five years ago the first outdoor school was established in this country in Providence, R. I. Boston, New York and Chicago followed soon after. There are now fifty or more scattered over the United States and they are multiplying rapidly; this in spite of the fact that the methods of municipal and educational management in the country make the beginning of any new work like this much more difficult here than in the countries named.

To correct a very common misapprehension in regard to open-air schools, let it be understood that they are *not exclusively* for tubercular pupils. While this movement—especially in America—has been initiated by anti-tuberculosis societies with the idea that this is one of the best ways to fight the "white plague," people soon learn that the little sufferers from anemia, chorea and many other chronic or sub-acute diseases can be benefitted almost as much as the tubercular; and, furthermore, schooling in the open air will keep *well* children healthy, will improve their

mentality and in every way be much better for them than the closed school-room.

About one or two per cent. of the children in our public schools are seriously enough affected by tuberculosis or are in some other way definitely enough diseased to warrant their being treated in a sanatorium. In nearly every case a fresh-air sanatorium is what they need, and the work of fresh-air schools shows that the education of these children can go on as usual while their health is being attended to. In these children the open-air school would emphasize the hospital or sanatorium part of the proposition, and might be described as a "Sanatorium School." It would, of course, be the most expensive kind of an open-air school. Carefully recorded observations of living children and autopsy reports show that tuberculosis is much more widely spread than was formerly thought. German observers who have made many post-mortem examinations assert that the majority of children thus examined show signs of tuberculosis, and American physicians who have examined many school children have found twenty per cent. or more affected. Considering that this is but one of the conditions in which open-air schooling would be a great benefit, the great need of such schools can be seen, although of course not all such children need to be in a sanatorium school.

In the next place, many children are not definitely diseased, but are not strong. They are underweight, catch cold readily, are easily tired out, are over-excitabile, etc. In these, the results of the fresh-air school are just as brilliant as in the previous class. Weights come up to the normal, hemoglobin increases and pulse rate and temperature become what they should be, and in every way the children approach the standard. The resisting power of the pupils is so improved that they are not subject to "colds" and other such contagious diseases. Attendance at school consequently improves, and—more wonderfully than all—mentality improves with this fresh-air life, so that the pupils are able to maintain their grade with much less study than in the closed school-room. More time can be spent in supervised and unsupervised play, and night work can be dispensed with.

This second class of children would include something like five

per cent. of our school children, but why should it not include all of the children who are not definitely diseased, or come under the care of what I have called the Sanatorium School? If experiments in hundreds of cities have shown that children who are not strong are improved physically and mentally in these open-air schools, must we not conclude that with a little extra provision for the comfort through our northern winters, such schools will keep healthy children strong and enable them to do their school work more thoroughly and in better time?

If I had my way, there would be no third division to the subject, for all our schools would be conducted in the open air, or at least be "Open Window" rooms; but until parents and educators will learn how desirable these schools are, we will continue to have closed school-rooms, and for these I wish to plead for better ventilation than we now have.

In open-air schools, warm clothing—often especially made of blanketing—is provided, and sitting-out bags, soap stones, felt boots, mittens, blankets, etc., are used when needed. In some of these schools the children come for breakfast and stay all day, having a warm luncheon and supper provided at the school. In others, they spend the same time as in the public schools, except that the noon-day meal is provided at the school. Cots or steamer chairs are used by those pupils who are found to require an afternoon nap. It is remarked that the children bear the cold much better than adults. When visitors are uncomfortable and teachers and nurses are hardly able to keep warm, the children will be comfortable and happy, with rosy cheeks and warm hands.

The medical results in these schools are surprisingly good. While we can roughly estimate the child's reaction to cold by the color of the cheeks, a surer method—and the one usually adopted in these schools—is to examine a drop of blood and estimate its hemoglobin. In this way, the physicians can see that the oxygen-carrying power of the blood steadily improves with the life in the fresh air. It is also gratifying to notice how the weights come up. A gain of a pound a week is not unusual, but it is a rare thing that the children do not show a more rapid gain than is seen in the normal growing child. One reason for this is of course

that the life in the fresh air almost invariably improves the appetite. After one month or two of this life children will eat twice as well as they did before, and the pale, sickly child which had to be coaxed to eat, will be glad to eat almost any food served.

It is surprising what open-air schools will do for nervous children. These little ones are poorly fitted for the battle for life. There may be a tubercular taint at the bottom of the nervousness, but for practical purposes, these pupils are merely nervous. The outdoor life steadies the nerves probably because it builds up the physical condition. Such an excitable child may be injured by the artificial life and the high pressure of the closed school-room, so that the mother may be alarmed by the condition of her child at the end of the school day, and may object to the study at night, even pleading for shorter school hours or keeping the child out of school frequently. The open-air school has a tendency to change all this. As the physical condition improves, the nerves become steadier and open-air life makes the required amount of study less of a task and a shorter one. Furthermore, the psychic effect on these children is for good. If the teacher is at all tactful, the child learns that the slight discomfort on cold, stormy days is easily borne when the proper frame of mind is cultivated, and thus the "psychic hardening" which the children undergo, is a valuable part of their education.

While common colds are prevalent among children in our ordinary schools, they are rather unusual among the pupils of fresh-air schools, thus adding another link to the chain of evidence we have that many diseases of the respiratory tract are caused by impure, overheated air. The ordinary contagious diseases of childhood, too, are much less prevalent among these pupils. In such a school in Pittsburgh the past winter the first such disease to make its appearance was tonsillitis, one case, but it was found that this child's mother had kept her home for the last two weeks because she thought the weather was too cold! Another pupil developed chicken-pox from an undiagnosed case in an older sister, but no other case developed in the school. In fact, colds were absent and improvement took place in sickly children in direct proportion to their school attendance, and the mothers who

kept their children out of school the coldest days were the few who could not be made to see this.

Educationally, these schools are a great success. In most of them the attendance has been decidedly better than in the ordinary closed school, although they take the sickly, pampered children who are often allowed to stay home when they wish. Most of the children learn to appreciate what is being done for them, and are anxious to get all the benefit possible. In fact, they have been known to object to a vacation.

The fresh air and the improved vitality in nearly every case bring about an improvement in the child's mentality, so that less time is taken up with regular school work, but the children are easily kept up to grade. In many cases, children who have been handicapped by ill health for years and have been struggling along in the ordinary closed school-room, have quickly brightened up in the open-air schools and have become normal, interested and interesting pupils, much to the surprise of their teachers.

In fact, fresh-air schools have been thoroughly tried and educators have come to the conclusion that the proposition is not a medical one, but one of practical teaching. While such a school may call for added resourcefulness on the part of the teacher in managing an ungraded school in all kinds of weather, it makes the actual teaching much easier, for it increases the child's ability to learn by making him more capable of clear thought and awakening his natural desire for knowledge. It has often been noticed by teachers and parents that these children become more orderly and cleaner than in the ordinary school.

Thus we see that the pupils in such schools are benefitted in body and mind. They also take the lesson of hygienic living back to their homes. If these schools are generally adopted, a great good will be done to pupils, teachers and families, and much money will be saved in doctors', nurses' and fuel bills. Many school buildings can then be of simpler and cheaper construction.

These schools have not been given up, so far as I know, in any city that has adopted them. The movement is becoming a recognized part of the public school system. In fact, the time is fast coming when our public schools will be maintaining open-air

schools for sickly children, schools for backward children, schools for truants, vocational schools, night schools and other special schools.

This paper may be concluded with the following recommendations:

First, that every public school of any size should have in connection with it a room where children who are not strong can have their health built up with proper medical care and nursing (observation, nourishing food, warm clothing and rest periods) while the education is still being carried on.

Second, that every public school should have many open-air or fresh-air rooms, provided with an unusually large window space, kept open as much as possible, thus giving children who are underweight, anemic or dull mentally a chance to get the good effects of fresh air, which the ordinary school does not supply.

Third, that less heat be forced into our school-rooms, and more of the naturally moistened air, for which we have found no adequate substitute, be admitted.

XXVII.

MEDICAL INSPECTION OF SCHOOLS.¹

By EDWARD W. GOODENOUGH, M.D., Waterbury, Conn., Chairman of Committee on Medical Inspection of Schools, Connecticut State Medical Society.

To prevent disease—this, as I understand it, is the purpose of this organization. You are the directors of health and sanitation. Isolation and disinfection following disease still form a large part of your task. If we can kill a snake or remove the poisonous glands before he strikes, he is harmless. Absolute disinfection without destruction, as by fire, is certainly difficult if not impossible. How we search for means which will increase the average individual resistance! In medical inspection of schools, properly carried out, we can give antitoxin for diseases in general without the use of a hypodermic needle. How far is state, city or town government justified in expending money for this purpose?

System is the watchword now in all business. Perpetual motion—the fountain of youth—impossible! yes—but approachable surely. We laugh at the philosopher's stone and transformation of baser metals into gold. Has not standard oil made gold out of coal oil, and how about iron ore under the influence of Pittsburgh and the steel trust? Economy, system and a little water for washing—presto, change, and the impossible is accomplished.

We burn sulphur and we liberate formaldehyde gas. We even use steam or fire. A typhoid carrier, a diphtheria culture breeder, a few chicken-pox cases with continued high temperature and days in bed—our protection goes to the winds.

Life with her anti-vaccination and anti-vivisection does stir us up some and occasionally finds a hole in our armor, but that is the joke of it.

Dr. Chapin, of Providence, finds the weak places and then goes ahead with all his might to fill them up. Professor Fisher writes about conservation of national vitality. A national board of health is coming, but while we wait, Connecticut is fortunate in her state health officials and their efficient secretary. He says

¹ Read before the Health Officers of Connecticut, April 3, 1912.

medical inspection of schools is a part of the real thing, and he is right. This means education in hygiene; in personal cleanliness. The importance of healthy growth is recognized by competent, well paid medical supervision. Here it is, the fountain of health in youth surely, if not the fountain of youth. We prevent disease by instilling into children through every grammar grade the benefit of fresh, not overheated air, with a clear nose to breathe it through and a clean mouth to masticate their food with, a mouth and naso-pharynx which shall not breed disease germs for their own injury or that of their schoolmates.

We are all creatures of habit. A child is more complex than a plant, yet child culture means the application of Burbank methods to the different species of the genus homo. Our schools are the culture beds in which grows our citizenship of wheat and tares. The highest work of plant cultivators is not the freak work. Because of the knowledge obtained by the cultivators of plants we have larger and more perfect grains of wheat, more perfect apples and pears and peaches. We know how to get maples and oaks and pines of the best character. We also know how to make the best use of waste soil, how to make the desert bloom as the rose.

We live in a republic. The children in our schools are our future citizens. If a majority of the children in the schools are properly developed, physically and mentally, we have done our part toward the development of a healthy, normal and therefore a generally happy citizenship. Each individual character is a combination developed out of good and bad habits. Nor do I refer to morality alone. Our bodies are a combination of good and bad habits of physical development, our minds are combinations of good and bad mental development. The earlier we begin, the easier it is to develop good habits.

To get the best fruit from a tree or vine, pruning is often necessary. In this way we remove the overgrowth in leaf and stem, and allow the fruit a larger proportion of the plant nutrition. In children an overgrowth of adenoid tissue in the nose or throat lessens the amount of oxygen which enters the lungs and the amount of blood which nourishes the brain. If not too long

delayed, the removal of this overgrowth will allow both lungs and brain their normal food supply. If 10 per cent. of the children of school age require such operations, we surely should see that parents are informed of the fact. The younger a child is, the more easily it is influenced. Every child has ideals and it is one of the functions of school life to elevate and develop these ideals.

Every physician who has much to do with children should become an optimist. We see children who are apparently physically hopeless. Their nutrition is bad, they belong to that class which "the survival of the fittest" would apparently wipe off from the face of the earth. With proper care these children develop rapidly and often become leaders. It is because of this knowledge that we are constantly working for improved physical conditions in the public schools. The open-air school is an outgrowth of this effort. In the school at Bradford, England, where school inspection was early developed, out of sixty children only two had pulmonary tuberculosis. These, of course, had neither cough nor expectoration; tuberculous children with cough and expectoration must attend open-air sanatoria like the one at Wallingford. This distinction should be clearly made.

Children with tuberculous glands or tuberculous bone disease who are not a source of danger to others are subjects for open-air schools. With them, anemic children and those with defective nutrition, are specially benefitted. Such open-air schools can be established in our own yards and such children play with our children with impunity. Constantly kept in a closed room, however, these physical defectives may not only go from bad to worse, but become a menace for this reason to other children in such closed rooms. We have already built in Waterbury an open-air school which I hope will soon be used.

During the two years of my service as medical inspector of the Waterbury schools I reported to parents 1250 cases of adenoids and enlarged tonsils. This is about 10 per cent. of the public school children inspected and included only those cases which showed symptoms requiring operative relief. In 450 cases the obstruction was removed. 200 children obtained glasses for eye defects and a number of others were given

special advice and treatment by an oculist. All cases of scabies, favus and ringworm were eliminated from school. All the children in the grammar schools above the first grade were examined by the Waterbury Dental Association for tooth defects, and where such defects were present a chart of the mouth condition was sent to the parent. The use of solutions of lysol or liquor creasol comp. were recommended for head washing and there were less than one-third of the number of pediculosis cases found at the end of my term of service than were found at early examinations. In the worst district, out of some 700 children, the percentage of these cases were reduced from 50 to 8 per cent. For this result the energy of the principals, assisted by the teachers, was largely responsible.

I read that Hartford and New Haven are to have a clean-up day. One of our principals has talked so much to her children about sleeping with open windows that they are much ashamed if necessary to report that their sleeping rooms are not nightly aired. This same principal asked the children to have their big brothers or fathers clean up the cellars and backyards, and in this way much was accomplished for the district. At the last meeting of the Board of Health the persistent overheating of a twenty-seven room building was reported by the Medical Inspector. The month before an effort was made to remedy a poorly lighted first-grade room in another building. You all know how difficult it is to get even an approximate report of cases of measles, whooping cough and chicken-pox or as the Borough of Naugatuck shows even the cases of small-pox. Through the Medical School inspectors and the nurses, a much closer watch is kept on these cases. With a thorough examination and record of each first-grade child and fifth-grade child, we have data which in time can be very valuable. The Medical Supervisor of the future will be an educator. The young children easily influenced will learn by observation the value of fresh air, not overheated, the desirability of cleanliness, the possibility of infection and contagion and therefore the value of isolation. They will learn what foods they should eat, and, among the poorer classes, what foods give the most nourishment at the least expense. All will not follow

the advice given or the example set, but enough will do so to materially improve our citizenship.

I have not discussed the mental defectives although lack of room at Lakeville makes this a serious problem. The time will soon come when every child in this state will be given every opportunity the public school can give for education in physical as well as mental health.

Let me quote from Hogarth his conception of what medical inspection means.

1. The state requires a physical census of the children for the discovery of unrecognized defects, partly with a view to the improvement of the national physique, and partly with a view to the preparation of all children for school life. It is also a national duty to arrange for the classification of children according to their mental capacities, and to adopt the educational system to the requirements of the several groups of children, in order to diminish the present economic wastage of misdirected educational efforts.

2. It is the duty of local authorities to protect the individual against communicable disease in school, to supervise school buildings, and to secure healthy surroundings for the school child.

3. Owing to ignorance, neglect, or apathy on the part of parents, it becomes a requirement of the merest humanity to bring medical aid and special educational methods within reach of the individual child.

These aims and ideals can be attained only by the introduction of a system of routine inspection of the children by medical men interested, not only in public health, but also in education.

These paragraphs seem fairly well to cover the subject if we would revise the first paragraph by saying "the State of Connecticut should require" etc.

For two years, 1910-1911, I was Medical Inspector of the schools of Waterbury. As an appointee of the Board of Health I visited the parochial schools as well as the public schools. I also supervised schools in the outside districts which were still under control of District Committees. During thirteen school months I had the assistance of a school nurse. Although an appointee of the Board of Health, I had the unqualified support of the school department, superintendent, principals and teachers. My work was that of a medical supervisor really. Seeing the children only once a month it was necessary for the teachers to emphasize each day the lessons which I tried to give each month in cleanli-

ness and neatness. I found that I could inspect, very superficially, an average of about five thousand children a month. The nurse who assisted me spent most of her time among the families in the different districts in order to see that recommendations for treatment were carried out. This year we have two nurses who are paid \$80 a school month each and two doctors who are paid \$60 a school month each. Depending upon the districts, a nurse should spend from forty-five to fifty-five hours a week in school work. Under the supervision of a physician much of the detail work which I did can be done well enough by a nurse. There certainly should be a nurse or doctor to do this detail work for each two thousand children or a fraction of two thousand and in all towns of five thousand inhabitants there should be a physician appointed to have medical supervision of the school children. Under his direction should the detail work be done.

The new record cards of our school department are planned in the belief that a physical examination should be made of every child on entering school and that another examination should be made at the end of primary work or at least at some time before the end of the grammar school. This could be done by the supervisor assisted by some of the younger physicians who could give their time to this work during September and October of each year. Where parents prefer to pay their own physician for such examination, the cards can easily be filled out by such physician. With two such examinations, five years apart, we could get a much more intelligent idea of the healthfulness of certain school districts or even of certain school buildings. It was suggested to me by a prominent health official that friction between the health and educational board could be obviated if the doctors and nurses were appointed by a joint committee of the health and educational boards. Certain it is that medical inspection of schools should bring school department and health department in closer harmony.

I received my early education in a small country school in this state. These schools need some sort of medical supervision. With a medical supervisor of several towns it should not be

very difficult at least to have a yearly visit from such a physician and each town could afford a school nurse for a portion or all of the school year.

Public schools are socialistic. We have compulsory education at certain ages. Society thus seeks to protect itself against ignorance. The health board of this state with compulsory quarantine and compulsory vaccination is decidedly socialistic in its protection of the citizens against ignorance or abuse of health laws. If sanitary laws are to be enforced for the public good, why not make education in practical sanitation and hygiene a part of our educational system. In another generation our citizens will show that it was worth while.

XXVIII.

THE DESIRABILITY OF TEACHING PREVENTIVE MEDICINE IN THE HIGHER INSTITUTIONS OF LEARNING.

By HENRY BIXBY HEMENWAY, A.M., M.D., Evanston, Ill.

Education has two objects—training of the mind, and the acquiring of information. In the lower schools the first of these objects is by far the most important, but the higher we go in the educational system training becomes relatively of less and less importance, and the information element becomes predominant.

Even the information factor may be divided, according to the object sought. The scientist learns German or French, not for the language *per se*, but as a key with which to unlock the doors to storehouses filled with special facts. Again, these special facts may be classified according as they may be used by the student in later life as a means of support, or as simply influencing his life as a member of society, or for the pleasure of knowing, which is the highest aim in true science.

In arranging a course of instruction, therefore, choice of subjects must be governed by the relative position of the institution in the educational system, and the character of the students, as well as their probable future lives. In considering the needs of the students, preference must of necessity be generally given to the character and aims of the majority, rather than to the exceptional man.

By the expression "higher institutions of learning" we understand that reference is made to that general class of schools familiarly called colleges of liberal arts, and to other colleges, academies, and seminaries, approximating in character thereto. The reasoning hereafter given in this article applies to technical institutions only in a very general way, except to those known as normal schools.

The expression "preventive medicine" is of recent origin. Its scope and importance is indicated by the old saw, "An ounce of prevention is worth a pound of cure." It is far easier to

prevent a fire than it is to put it out after it has started, and if put out it may have wrecked and destroyed invaluable objects. From a biologic standpoint the most perfect life is health. Disease is a condition in which the life lacks its highest standard. Disease does not enter the body unaided, but it must be assisted by bacteria, unhygienic environment, and the personal sins of the victim. It was formerly supposed that hygiene—the preservation of health—was chiefly an individual concern. To-day it is recognized that the same conditions which produce disease in one person affect others in the neighborhood, and that one case of sickness may be a serious danger to a large city. It is impossible for one person to protect himself efficiently in a city infested, for example, with the plague. The interests of the citizens are common, and protection can best be secured by concerted efforts. In addition to the personal hygiene which has so long been recognized as a preventive power, we have more recently magnified the importance of organized efforts by the entire community. To-day this is the major part of preventive medicine.

Efficient organization necessitates, first, recognition of the need for organization. Second, competent workers in the field. Third, necessary support of the workers as individuals, and of the work conducted.

A recognition of the need for organization can come only when there is a general diffusion of basic principles in health work. So long as malaria was supposed to be an aerial miasm, and perhaps influenced in its spread by conditions of cold, or dampness, it would have been manifestly impossible to institute efficient antimalarial measures. When typhoid was supposed to be only waterborne, the need could not be recognized for food inspection and safeguards. Note the destructiveness of the fly at Chickamauga, in 1898. Unfortunately to-day, though there has been a great increase in the amount which a few know in this general field, the mass of citizens are still in midnight darkness. Having always been in that darkness they do not realize that there is any possibility of having more general light. How shall they be enlightened?

It necessarily follows that if the people as a whole are in darkness, and do not know the elemental facts of the present science of preventive medicine, they will be unwilling to furnish the supply of money needed for the work and for the support of the workers. Further, because the mass is ignorant of the need for the work, and also because they are not willing to pay the workers, those who should be preparing themselves for positions of responsibility in the service will not consider such a possibility. They can not.

Laws can neither be well made nor enforced unless the persons responsible are well informed upon the subject. In a republic all citizens have a responsibility in this regard, and it therefore becomes the duty of all persons to become posted upon the principles of preventive medicine. To thus become informed, they must have instruction, and the instruction must be in proportion to their capacity. It has been found that such education in the grade schools not only becomes an active leaven in the body politic, but that it also serves well as a means of teaching the scholar to think. But, in order that the teacher may properly give such instruction it is necessary that she be educated to a higher degree upon the subject. This presupposes that she shall have had instruction in her higher school training. She must be able by precept and example to lead the children into the light, and to inspire them to seek further advancement.

Take, for example, the subject of malaria. At Trinidad, Sir Rupert Boyce saw excellent studies of the life of the mosquito in the note-book of a little girl in the grade schools. Such a study teaches the child observation, as few subjects can. It trains both brain and muscular control, with an incentive which is lacking in mere training for training's sake. It serves therefore every essential of a true education.

In higher institutions the student may be taught how to study and analyze facts and statistics, the work of the laboratory, and research into the literature. These are matters of training, independent of the subject studied, but they are given additional interest to the student by virtue of the every-day application of the facts developed. Preventive medicine is therefore an ideal

subject for advanced work in the arts and sciences, in schools of liberal learning.

Graduates from the higher institutions of learning are naturally looked to for guidance in forming public opinion. At present these graduates depend upon the uncertain and often erroneous information derived from the secular press. We can not expect that we may obtain wise laws relative to vaccination, for example, so long as the makers of public opinion are so profoundly ignorant as at present. There are few subjects so vital for the citizens as the preservation of public health. In selecting a curriculum, therefore, this subject should demand preference, especially since it is well fitted for the proper training of mental operations.

The literary colleges are far better fitted for giving the general, or fundamental ideas as to public health conservation than are any technical schools. There are, for example, certain principles of administrative law in the administration of health departments which may be easily given in connection with the courses in literary colleges, whereas, in a technical school the same instruction would necessitate the use of more time, and frequently it would require another instructor.

It is hoped and expected that before long all medical students must take one or more years in the literary colleges before entering the technical schools. The education given in a literary college should prepare the medical student to omit preliminaries, and devote his time spent in the study of preventive medicine directly to the purely technical portion of the subject.

No matter how thoroughly fitted the public health administrator may be, even if he may secure the passage laws which are satisfactory, the enforcement of such laws will be difficult or impossible until the people as a whole are educated up to a full appreciation of the facts. For example: Rabies was formerly supposed to be dependent upon hot weather. A law requiring dogs to be muzzled through an entire winter would be opposed by many ignorant, but well meaning people to-day. Enforcement of the law would require extra supervision, and would often necessitate expensive litigation, ending possibly in the repeal of the law, and the crippling of administrative efficiency.

So far we have spoken especially of a general education in preventive medicine. Up to the present time such instruction has not been usually given, and practically there is no possibility for such training unless the literary colleges wake up to the necessity, and make suitable provision in their curricula. It must be remembered that the technical education of professional workers in the field is to-day given in non-medical schools. In other words, there is fully as much, if not more, of the special education required which naturally falls within the schedules of schools of engineering, for example, as in medical schools. On the contrary, there is more in the medical school training which is foreign to preventive medicine. The result is that many of our foremost sanitarians are not graduates in medicine. In medical practice there is little need for knowledge of general zoology, geology, mechanics, mathematics, law, and higher chemistry, all of which are of great importance in preventive medicine. More than three-quarters of the medical course is only of remote application in preventive medicine. Medical men are a necessity in the work, and a medical man with the other education also is the ideal health official, but it appears that for some time at least very much of the technical training for health officials must be in non-medical schools.

At the University of Illinois, during the past school year, a course of free public lectures upon preventive medicine was given. The lecturers were prominent special workers. The course was freely advertised. In spite of this, the attendance was far from satisfactory. Prof. Milton J. Rosenau, of Harvard, gave the Harris Lectures at Northwestern University this year. His subject was intensely practical. A class of young ladies from the Normal School at Normal Park came twenty-five miles to attend the course. Still the attendance of Northwestern students was far from what it should have been. It is not sufficient that such courses be given. Since the subject is one of vital interest to the community as a whole, attendance on at least a portion of this instruction should be compulsory.

We would suggest that as a start one competent instructor be engaged. He might personally give lectures upon the general

subject, and these lectures all Freshmen should be required to attend. He should also conduct class work, which might be elective. Seminar work should also be provided. Such an instructor might, through conversation with the professors in other departments, see to it that in the other courses emphasis be placed upon public health subjects. For example, the professor of zoölogy might well devote special attention to the classification, and life habits of flies, mosquitoes, ticks, and other insect carriers of disease, as well as the rat, ground squirrel, guinea pig, and other animals which are to-day receiving the attention of public health workers, either as dangers, or as subjects of experimentation. So, too, the department of political science should bring clearly before its students the special points in administration and legislation which have bearing upon this work. The botanical department may, and should, give instruction in the science of heredity, and in this even the chemical department may give assistance. Such instruction in other regular courses would not in the least disturb those courses, and they would aid not only in the practical education, but also by attracting attention to this field. These other professors, specialists in their fields, might also give a special hour occasionally to the class conducted by the professor of preventive medicine. Unless there be a professor, or instructor, of preventive medicine to call the attention of other professors to the special bearing of their departments upon public health, it is not likely that they will think of making prominent these important items which naturally fall within their particular fields.

The objections to such courses are first, a lack of appropriation. This lack is *per se* evidence of the need for such education. Funds are forthcoming for all causes whose public value is appreciated. It is to-day relatively difficult to get a hearing before the people upon subjects connected with public health. There is beginning to be a change in this regard. We may reasonably expect that ere long endowments will be generally made for the instruction. At present such endowments as are made are for the purpose of investigation. The knowledge of the few investigators and

workers has already far surpassed administration, and general appreciation.

The second objection is that the interest of the students is very problematical. This is true, and it can be demonstrated only by trial. The success of the trial will be largely dependent upon the personality and method of the instructors.

It is objected further that there is as yet no demand for such courses. Certainly there is not. The demand cannot precede the appreciation of the need. Because the people do not know that they are in darkness which stunts their own individual growth, they do not call for light. Further, to a very great degree students take without question the courses offered and do not demand something not down on the published schedule.

Again, there are some who oppose this innovation because they do not know how to arrange for credits in this work. This is purely an administrative question. Its answer must be governed largely by the courses offered. To urge this as an objection is a confession of administrative laziness or inefficiency.

Finally, it has been objected that no suitable text-books are available. This is hardly true. Harrington's "Hygiene," Egbert's "Hygiene and Sanitation," or the "Rural Hygiene" of either Ogden or Brewer might serve very well for such use, supplemented with other instruction which a competent instructor might give. It would be a practical impossibility to cover all of the subject in one book at present. If the work is done by recitation, the students might well be expected to do general reading from many sources in the college library. Such reading should include certain portions of constitutional and administrative law, with cases, works on meteorology, climatology, and zoology, for example. The lack of text-books is not therefore a valid objection. If it shall later appear that there is such a deficiency it will unquestionably be filled.

XXIX.

MANAGEMENT, MAINTENANCE AND EFFICIENCY OF THE SCHOOL FOR CRIPPLES IN CLEVELAND.

By J. E. TUCKERMAN, A.B., M.D., Cleveland.

In the State of Ohio we have public institutions for the blind maintained by the state. There is a school for the deaf entirely under the control and maintenance of the public school system in Cleveland. There is, however, no fully controlled public institution for the care of crippled children who cannot get to and from school. It remained for private benevolence to start such an institution.

The Sunbeam School for Crippled Children was originally founded by an organization called the Sunbeam Circle and was incorporated in June 18, 1902. Its membership was limited to thirty active members paying dues of \$5.00. Provision was made for honorary members having dues of \$2.00. There are at present about 148 contributing members who, while not active in the management, contribute to the support of the enterprise. Originally the efforts of the Sunbeam Circle were confined to the buying of braces for needy children and to the maintenance of a day nursery or kindergarten under the charge of Miss Amy Noak. In 1910, part of its activities were assumed by the Cleveland Board of Education under Director Charles Orr. The present arrangement therefore is a coöperation of private charity with the public school system.

The school is housed in a portable addition or separate building of one story construction on the grounds of the Wilson School on East 55th St. There are three class-rooms, a small surgery, and a kitchen. The children are called for by omnibuses and thus taken to and from school. The sessions last from nine in the morning until two-thirty in the afternoon. A hot lunch is served at eleven-thirty. The classes range from kindergarten up to the sixth grade. The enrolment in 1911 was 61, while at present it is about 70. In 1910 the attendance was 40. Then one teacher and an assistant were employed and two 'buses were

used to gather the children. At present the teaching force consists of a principal, three teachers and an assistant. A cook is employed to prepare the lunches, and three older girls are employed to help care for the children at the school. Four 'buses are required, each traveling an average of twenty miles in making a round trip. They are manned by drivers and the four truant officers detailed by the city for the morning trip. On the night trip the children are accompanied home by the older girls who replace the truant officers in helping the patients out of the 'buses.

The coöperation of the Visiting Nurses Association, the District Physicians, Lakeside Hospital Clinic and Rainbow Cottage is had in locating deserving cases, and in taking care of their surgical and hygienic needs. A small surgery for making dressings has been equipped at the school where a graduate nurse attends tri-weekly, and oftener if needed. A physician visits the school once a week. For operative procedures the children are taken to Lakeside Hospital Clinic and for prolonged convalescence to Rainbow Cottage. Children who have recovered so as to be able to go to school unattended are returned to the regular grades. In 1911, 15 children were returned to the regular grades, having lost very little school time in spite of their illness.

The Public Library furnishes books for home reading. The Board of Education has made the comfort, health and happiness of the child its first consideration, while education is considered secondary. Most of the children are of average intelligence, but there are a few of decidedly low mentality who ought to be placed elsewhere. Once a week there is a class in manual training for boys and one in clay modeling for the girls, but as yet no special instructor is employed for this work.

During the summer the Circle endeavors to give each child a two weeks' summer outing, and through their nurse to keep track of the medical needs of the children.

The burden of expense is borne as follows: The Board of Education furnishes the school-rooms, the teachers, the 'bus drivers and truant officers; the visiting nurse is paid by a certain private individual, while the cost of the lunches, the supplies for medical and surgical needs, the employment of the woman who does the

cooking, and the employment of the three girls who help with the children, is met by the Circle. The services of the District Physician, Lakeside Clinic and Rainbow Cottage are donated.

An idea of the type of cases which find their way to the school can be obtained from the 1911 report.

Tuberculosis of the hip.....	10
Tuberculosis of the spine.....	9
Infantile paralysis.....	20
Congenital dislocation of the hip.....	4
Rickets ("Soft Bones").....	4
Tuberculosis of the knee.....	5
Patients under treatment for clubfoot.....	2
Unhealed amputation, arthritis, hydrocephalus, muscular dystrophy, disability from old fracture, of each.....	1

Of these 57 were patients at Lakeside Hospital Clinic, 5 were under the care of private physicians, 16 had been both at Lakeside and Rainbow Cottage, and 30 have been supplied with braces by the Lakeside Brace Fund. In the year 1911, 192 new cases of cripples were investigated, many of whom were sent to Lakeside or Rainbow Cottage and are now (1912) in attendance at the school. The 1911 report shows that during 1910 the cost of eight months of school was \$1,874.13 to the Circle, and that the two months in coöperation with the Board of Education cost the Circle \$769.47.

Miss Christiannar, the principal, states that it is impossible with the present system and facilities to learn of all the children who might be aided by the school. Sometimes the children live too far to be reached even by the 'bus. This school is in need of more room, of a special teacher for manual training and greater facilities in fetching the children to and from their homes. The work has undoubtedly established its need for existing, and the partial recognition and part support accorded it by the Board of Education must ultimately result in the complete control both of the work and the finance by the public school system.

There is aside from this school a home for crippled and invalid children called the Holy Cross House, a non-sectarian organization occupying temporary quarters at 5609 Whittier Ave., which

accepts and cares for children who are permanently invalided and which at present has twenty inmates. The expenses of this institution are entirely met by private benevolence, except that the Board of Education has for three years furnished a teacher to give such instruction as can be given. The matron of this institution states that in the last year they have had to turn away 60 suitable cases.

Investigation shows that while these two institutions are doing very creditable work, their facilities are entirely inadequate to meet the needs of a city of 600,000 inhabitants. These schools show how private enterprise very frequently starts meritorious work which it cannot adequately finance, which by right the city should carry on, and for which the city will have adequate funds (as it now has not), when it learns to appropriate community values through taxation for this purpose, instead of relying upon the uncertain benevolences which the wealthy may see fit to give.

XXX.

THE WELL FED CHILD.

By A. L. BENEDICT, A.M., M.D., Buffalo, Consultant in Digestive Diseases, City and Columbus Hospitals; Attendant, Mercy Hospital; Editor *Buffalo Medical Journal*; Author of *Golden Rules of Dietetics*.

While acknowledging to the fullest extent, the importance of eye-strain, adenoids, defective teeth and various other physical handicaps of child life, it may be more than a personal interest that warrants the writer in emphasizing the homely subject of nutrition in the limited sense.

First of all, however, it may be allowable to reiterate the opinion, opposed as it is to modern tendencies, that the prime function of the school is education in the narrow sense of "book larnin." In so far as the public school system undertakes the medical care of children, it undermines the family physician and fosters a socialistic spirit of dependence for which this country is not ripe. To the extent that the school systematizes the play and mechanic ingenuity, scientific spirit and other spontaneous activities of children it creates a breach between child and parent, crushes individuality and initiative and necessarily diminishes the liberty of the child. The tendency to make the school a center of social life has led to the premature development of fraternities with their attendant evils; it has offended both the less fortunately situated and those who claim for themselves and their children, a certain amount of exclusiveness; it leads social life away from natural paths starting with the family. The institution of school luncheons, provision of textbooks, clothing, free excursions or anything else, which should normally be provided by the parent, tends to pauperize, on the one hand, to increase taxation on the other.

These reactionary statements require a qualification that mitigates their severity and modifies their implication. The writer would not have a single one of these modern extensions of the school activity abandoned. If anything, still more advantage should be taken of opportunities afforded by the daily massing together of the child population, to investigate, control and benefit

what is not merely an important part of the community but the whole social body in its impressionable stage.

But, whatever is done, should be with a firm appreciation that the school cannot take the place of home life, parental guidance and instruction, existing social, religious and hygienic institutions, nor of the child's spontaneous and free play and work. The educational system should, in everything beyond its primary function and in every encroachment on time beyond the ordinary schedule, question seriously whether some one of the other factors in child development is failing to act. If the failure is due to accident or carelessness, the attention of the parents should be called to the omission. If, either in individual cases or in abnormal masses of population, the child is not receiving proper attention, from inability, of the factor involved, then the municipality or state should step in, tactfully and kindly, but with the full realization that it is supplying amusement, a carpenter's bench, a warm and reasonably well ventilated room, trips into the country, luncheons, instruction in nature, vaccination, dental fillings and what not, for exactly the same reason that exists in the case of an orphan.

To limit this principle to the special subject of this paper, the actual supplying of food, in the school, rests on exactly the same basis as the establishment of a bread line, soup kitchen, milk dispensary or any other donation of food. Of course, no reference is made to the occasional coöperation of parents or children, for the sake of convenience and economy, as when the school is at a considerable distance from the homes; but to the school luncheon established as a matter of philanthropy and furnished free or at a nominal price. Nor, in the present sense, is any reference made to the sale of meals or articles of food, in schools, as a matter of business. The unpleasant fact remains, however, that in certain districts, there exists such a state of poverty or of ignorance and carelessness, or of indifference to children's welfare, that the school luncheon is a necessity. In such cases, we must take the bull by the horns, organize the charity on a working basis and, by no means an unimportant item, make the fact that it is a charity, as little conspicuous as possible. Another

matter of importance is that the luncheon should not simply satisfy the appetite but should provide at least a third of the nutriment required daily, properly assorted, wholesome and digestible. Coffee and tea should be barred, and, if soup is used, it should contain plenty of meat and vegetables, rice, etc.; it should be free from foul smelling vegetables; and it should be accompanied by some form of breadstuff.

The lunch counters, conducted on a commercial basis at certain high schools, etc., may be dismissed in a few words. They should, of course, be carefully supervised. The prices charged should be reasonable, and based, not on those appropriate to cafés but of bakeries and markets, bearing in mind that there is, or should be, practically no expense for rent. This item is more important than might, at first sight, appear. Not only do the customers come from families of all means but economy is a very necessary lesson for youths. One of the great problems before us is the general increase in the price of necessities and the item of greatest relative expense and greatest relative increase of cost during recent years for the whole community up to the 5 or 10 per cent. of highest income, is food. The rising generation must have a standard of minimum charges, to guide them in the home-forming stage which for many high school students is only two or three years distant and may, indeed, already be anticipated by assistance to parents. Persons of moderate means are already beginning to view with equanimity, charges for dinners equal to the actual cost of a week's adequate rations, and profits in the sale of eatables five to ten times as great as in the sale of clothing, fuel, light, housing, etc. Foolish pride in allowing such a scale of profit to the producer or the various middle men and in allowing such an increase in the cost to the consumer will tend still further to debase the dollar in purchasing power.

It goes without saying that both food and water should be clean, in the scientific sense of being free from either specific or saprophytic germs or from their previous action, tending to fermentation and putrefaction. It is also plain that the food served should be nutritious and of adequate nutritive content. As a matter of education, standard viands should be listed to show

average gross weight, content of various nutritive principles and calories, with tables showing the totals needed daily.

In controlling the bill of fare, the necessity of eating plain, wholesome food, should be borne in mind. At the same time, such control should not be based on mere prejudice. For example, there is no objection to hard boiled eggs, smoked meat, ordinary cheeses, pies, doughnuts, cookies, ice cream, eclairs, Charlotte Russe, etc., provided that they are fresh and properly made. Sugar, as such or incorporated in composite foodstuffs, is a most valuable source of energy, easily digested and entirely wholesome. No one foodstuff or proximate principle should be used to an undue amount and the diet should be properly balanced. Common sense, or rather actual fact, based on food analyses and studies of digestion, should have more weight than the prejudice against articles of food because they are agreeable. Conversely, the prejudice in favor of various roots, bulbs, leaves, stalks, etc., because they are plain, ordinary foods, should not blind us to the fact that some are practically devoid of organic nutrient value, and that the great majority are very low in the scale, although of service as laxatives and antiscorbutics.

It is important both from the standpoint of the medical inspector and of the teacher seeking the explanation of inattention, naughtiness, dullness and failure to keep up with class averages, to remember the experience of many an automobile driver, who has tested his batteries, taken out his carbureter, looked over his pipes for leaks and finally discovered that his gasoline tank was empty. We must not overlook astigmatism, adenoids, tuberculous tendencies, the effects of CO_2 , etc., neither must we overlook the fact that much of the inefficiency of school children is due to inadequate nourishment.

Many adults find by experience that they can do best on a very light breakfast although the fact is contradictory to what is known regarding the capacity of the body for storage of nutrients. But for school children, whose physical exertion at play and in walking or running to and from their work, and whose mental application and hours of work exceed that of the majority of adults, a hearty breakfast is necessary. Within the last few

months, it has been borne in upon the writer that the average fairly prosperous business man has very short hours, very frequent holidays, very long vacations and that, beyond the very general planning of his business, he does very little actual work. The employee works longer hours but, with a few exceptions, not nearly so long in proportion to his state of development and resistance as the child is not often required to overstrain himself physically and, in whatever kind of work he is engaged, he is, for the most part, repeating the same process with ever-increasing ease of performance whereas the student is daily encountering new and unfamiliar problems.

With the increase of numbers and density of population, and the gradual change in its composition, there is, especially in cities, an increasing number of families too poor to provide adequate food or too ignorant to purchase and prepare it so as to get the ultimate return theoretically possible from the amount actually expended. And with poverty, we often find a callous indifference to children and a tendency to exploit them as wage earners at a too early period. We must remember, too, that for all practical purposes, we have a debased currency, so that an income sufficient at least for the necessities of life a generation ago, may now actually threaten the adequacy of the food supply. In a pitifully large number of cases the failure of children to keep up with their classes is found to be due to the fact that they are hungry. In some cases, direct aid must be given to the family—and in such form that the children shall get the benefit from it—in other cases advice as to choice and preparation of food and insistence upon these points is all that is necessary.

Even among families of considerable means, the capricious appetites of children and lack of personal supervision by parents often leads to practically the same state of mal-nutrition as among the very poor; at least the children go to school with an insufficient breakfast. The use of coffee, tea, and even beer is by no means infrequent. The former seem to be equally in use among poor and well-to-do, in the one case as a cheaper substitute for real food, in the latter as a stimulant in the lack of an appetite. Beer is more commonly used by children among the very poor

and recently foreign population. Otherwise, we do not usually find any kind of alcoholic use by children until we reach the stage of wine with meals and a sideboard. Unless in an emergency, no one should indulge in either alcoholics or xanthine beverages till full maturity is reached—if indeed then.

A very practical difficulty is that the school hours are based on a time table which, for many families, has been superseded. The adults want a late and light breakfast, a light luncheon and a hearty dinner at six or seven. Their evening is protracted nearly to the beginning of the next day on the average, and, very naturally, the women at least do not want to rise till about the time that the children are in school. Even if the children go to bed early—and often they do not—it is asking a good deal of them to get up before the family, allow plenty of time for a leisurely breakfast, and for the “stomach to wake up,” deny themselves coffee, make a judicious selection of food, and get to school properly charged with nourishment. At noon, the grammar school pupil has to hurry through a meal before the family is ready to eat, often before the best part of the luncheon is fully cooked. On the other hand, the high school student, allowing for the longer single session and the greater average distance, comes home to an equal lack of companionship and a cold, or warmed up assortment of left-overs. And, in both cases, it is usually a luncheon and not the needed dinner. At evening dinner time, the child should have a fairly simple meal. To get it he must, voluntarily or under compulsion, go without the most attractive portions or else must, in order to have the full amount of sleep needed, perpetrate the physiologic blunder of trying to sleep with the nutritive and emunctory organs taxed to their utmost with about half of the liquids, purins, proteids and total nutrients of the 24 hours. During the first year of the high school, the child has to adapt himself to a shifting of the mid-day meal to a point nearly two hours later than his habit. He has a long period of hard mental work after a light meal, followed by a short period of comparative leisure after what his accumulated appetite is apt to make a hearty meal, upon which a still heartier one is imposed with barely time for emptying the stomach. And then,

with a full store of material for mental and physical energy, he is expected to remain quietly indoors and go to bed with a full stomach and almost every viscus hard at work; or he is blamed for indulging in the social habits with reference to which the meals are arranged and in which he has the example of his elders. On the other hand, if the long single session of the high school has exceeded the hungry stage, the pupil takes an insufficient luncheon, and there is every excuse for the development of functional disturbances of digestion which so easily pass into organic disease.

We expect the child to exercise initiative, judgment and self-denial in making the best of a meal schedule which the most ingenious planning could scarcely make more inappropriate. If he does so, well and good; if not, he was formerly considered dull or inattentive or bad. At present, we ascribe his condition to various physical defects and faults of hygiene or to heredity, but usually overlook a simple and obvious reason. This should not be considered as in any sense an objection to or failure to appreciate the medical and hygienic importance of the conditions that we are investigating but a plea not to forget the matter of nutrition.

It is always unsatisfactory to propound a problem without offering a solution. But it must be conceded that, in general, we cannot expect the child to exercise prudence, judgment and self-denial greater than that of the average adult. In some way, the school child's regimen must be adapted to his requirements or the community will lose in morbidity, mortality and inefficiency. And the adaptation of the regimen seems to require parental ability and personal attention, even sacrifice of convenience.

XXXI.

TEACHING OF FIRST AID IN SCHOOLS.

By CHARLES A. KINCH, M.D., New York.

The idea of instruction in First Aid to the Injured originated in the brain of Prof. von Esmarch, of the University of Kiel, when he was Surgeon-General of the German Army. He argued that the efficiency of the soldier would be increased, his suffering alleviated and often his life would be saved, if his wounds could be promptly dressed on the field. Accordingly, every man was furnished with a packet sewed into the lining of his coat containing a clean compress, a bandage and a strap for a tourniquet to stay the flow of blood. The results justified the expectations, and after the Franco-Prussian war, he expanded his instructions so as to be useful to railway and steamboat officials and employees in factories and mines. He added chapters on poisons and household emergencies. Good Samaritan Societies were established all over the Empire. The idea was transplanted to England, and engrafted on the St. Johns Ambulance Associations which had been formed to inspire manliness in young men and teach them to save people from drowning. In 1882, a First Aid society was organized in New York City to give this instruction. Recently the American National Red Cross has created a very efficient First Aid department, for instruction in all the large cities of the country, New York being left to the society already established there. The Pullman Company has given the Red Cross a railway car completely equipped with appliances both for giving and teaching First Aid. Many of the western railroads and lately the Pennsylvania have welcomed this instruction. The Bureau of Mines has also made a liberal use of the Pullman First Aid cars. Many classes have been formed in settlements and neighborhood houses. The New York Board of Education regularly includes this subject in its courses of free lectures and a very large number of those attending have submitted to examination and received diplomas. The question of including First Aid in the scheme of public instruction has been broached. The

Boy Scouts and similar organizations of boys all over the country have taken up the matter, all of which leads us to the inquiry: At what age is instruction in First Aid best to be given?

The average boy is content to be in "leading strings" until his tenth or eleventh year. At this age he aspires to be a leader, or at least to be a member of a gang. Altruistic principles do not develop until a couple of years later. Neither is coöperation or team work well done before the thirteenth or fourteenth year. Then the boy realizes that he has a neighbor and he wants to do something for that neighbor. His sufferings appeal to the boy's sympathies. Then also he is able to understand the mechanism of the human body and has acquired a certain amount of dexterity in the use of his own hands and members. And he has attained a measure of stature and strength that make him efficient in rendering prompt aid to the injured.

Of girls, about the same things may be said. They are more capable of serious altruistic thought after the thirteenth year than in their childhood days. And by that physical and mental development better able to comprehend and apply the principles of First Aid.

Nothing in the foregoing is to be construed as discouraging special instruction for imminent needs. But just as correct speech is taught from the earliest days and the study of grammar and rhetoric deferred until riper years, so should instruction in First Aid be fragmentary and adapted to present emergencies in the case of little children and its systematic study be postponed to the third or fourth year of the high school curriculum. In social and settlement work the proper pupils for instruction are to be found in working girls' clubs and young men's classes rather than the junior organizations.

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